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Presidential Address
ON
SOME PRINCIPLES OF NEUROLOGY.

Delivered before the Neurological Section of the Royal Society of Medicine,

BY HENRY HEAD, M.D. CANTAB., F.R.S.,
PHYSICIAN TO THE LONDON HOSPITAL.

LADIES AND GENTLEMEN,—It is exactly 26 years since I had the honour of reading my first paper, on Pain in Visceral Disease, before the Neurological Society. Looking back over a quarter of a century, it seemed to me that I might employ my Presidential Address most profitably by considering certain principles which underlie the standpoint of neurology to-day. I am not going to weary you with an historical epitome. In this quarter of a century there have been no startling discoveries; but I believe that to-day the outlook of the younger generation is fundamentally different from that in which we were brought up, and I shall attempt to indicate the direction in which it seems to me the science of neurology is moving.

SATISFACTION WITH WORDS IN THE PAST.

The cataclysmic events of the last four years have shaken men's belief in the old order, and medicine has not escaped the universal demand for a restatement of current values. The young are looking to us to enunciate the principles on which our teaching is founded. They are not disposed to accept without criticism convertional explanations. They regard with scepticism the statements, current in text-books, that the manifestations of an epileptic convulsion are the expression of "irritation of the cortical centres," or that aphasia is explained by "the destruction of visual, auditory, or motor images." Their curiosity is no longer satisfied by attributing the sensory changes, caused by a peripheral nerve injury, to a "paræsthesia" or "hypo-æsthesia." And, indeed, words of this order are but anodynes to the conscience. They explain nothing; they serve only to put to sleep the salutary feeling that further investigation is necessary.

Satisfaction with words, that are in many cases nothing more than a restatement of the problem in bastard Latin and Greek, was one of the most remarkable characteristics of the last quarter of a century. No better example could be found than the misuse of the word "toxæmia." We are assured that certain diseases are due to this cause; but, although we know much about the pathological changes in the central nervous system, the symptoms they produce, and the course of the disease, the "toxin" is purely hypothetical. Everywhere we find this remarkable tendency to explain the known by the unknown.

Now, every student of Natural Science should retain something of the simplicity of the child. You all remember the story of the emperor and his new clothes. Two weavers asserted that they had woven a cloth of extreme beauty and fineness; it had, however, one unusual characteristic: it was invisible to those who were stupid or unworthy of the post they held. Neither the emperor nor his courtiers could, it is true, see the stuff, but each was anxious not to betray himself, and all were loud in its praises. Royal robes were made of this wonderful material, but as the procession wound through the streets a child called out, "Why, he has nothing on"; and the child's saying passed from mouth to mouth among the crowd. So the young to-day are calling to us to recognise that many of the terms we use so glibly mean nothing. They do not cover the nakedness of our explanations.

CONCEPTION OF SYPHILIS OF CENTRAL NERVOUS SYSTEM.

This satisfaction with names is apparent in our conceptions of disease. No better example could be found than the customary attitude of clinicians towards syphilis of the central nervous system.

Tabes dorsalis and general paralysis of the insane are thus spoken of as "diseases." In reality, there are two factors only in the morbid manifestations produced by syphilis of the nervous system, the character of the infective activity and the site of its anatomical incidence. The *Spirochæta pallida* may attack almost any structure, and the "disease" expresses the functions of the tissues affected. Tabes dorsalis is a convenient term to express the fact that the principal focus of the destructive process lies in the posterior columns, and "general paralysis" simply indicates that it has fallen mainly on the higher cerebral centres. Year by year the line, once so finely drawn between tabes dorsalis and dementia paralytica, grew fainter as the identity of the pathological process underlying the two conditions was recognised. With the invention of the term "tabo-paresis" the boundaries between the two diseases fell. We now know that any nervous function, from the lowest reflexes to the highest intellectual activities, may be affected in consequence of syphilitic infection of the nervous system; and it is only by arbitrary selection that these diverse signs and symptoms can be erected into "diseases."

Then, again, "parasyphilis" was supposed to be the manifestation of a process, syphilitic in origin, but not strictly syphilitic in nature. We now believe that "parasyphilis" is nothing more than an anaphylactic reaction in the tissues of the central nervous system, which have been rendered hypersensitive in accordance with their peculiar lymphatic supply. "Parasyphilis" does not differ from "chronic cerebral syphilis" in any essential pathological particular. It is merely a similar reaction in a different tissue. No better example could be given of the law that, in morbid conditions of the nervous system, the form assumed by the disease is determined by the site of the destruction, whilst the course it runs is dependent on the natural history of the pathological process.

CHANGED ATTITUDE OF THE NEUROLOGIST.

During the last few years the attitude of the neurologist has undergone a subtle change, not only to disease, but also to its general effect upon the patient. At one time everyone was seeking for a sign or a syndrome. Happy the man who could discover a new reflex; it did not matter that he left it unexplained and failed to correlate it with other ancillary functions. It was a "fact," and to it his name was attached.

But the discovery of such a phenomenon is nothing more than the statement of the terms of the problem awaiting solution. To find its explanation we must look to the behaviour of the nervous system as a whole and observe how its reactions are changed. In many cases this leads to the consideration of phenomena which would have been thought frivolous by the older generation. Take, for example, the importance attached to the patient's account of his own sensations, or the diagnostic value now attributed to certain dreams.

In 1901 I described certain mental changes associated with disease of the heart and lungs, and showed that they formed another aspect of referred visceral pain. This work fell dead. For those who were interested in morbid conditions of the internal organs cared nothing for changes in the mental state of the patient; on the other hand, the alienists denied the facts, because of the remoteness of asylum life from the conditions of hospital experience. They made no effort to discover, whether such remarkable examples of the dependence of mental states on disturbances of bodily functions were really open to their investigation. To-day, however, this work is falling into its place as a small contribution to the relation of body and mind.

Interest in the functions of the nervous system as revealed by disease is steadily growing. The English school has always been essentially physiological, from the days of Marshall Hall onwards; but this growing attention to function is mainly due to the teaching of Hughlings Jackson. He sprang from the physiologists of the middle of the last century, and was deeply imbued with the principle of evolution not only of structure, but of function. But his contemporaries became increasingly obsessed with anatomical and topographical details. As years passed by, the teaching of the day moved away from Jackson's conception of an evolution of function, still demonstrable in the activities of the nervous system. Finally, his doctrines were scarcely comprehensible to those of us who were brought into daily contact with him in the wards, seduced, as we were, by the glib generalities of more popular teachers. But, when we came to think for ourselves, we found that his conception of a functional hierarchy, in which one form of activity was dominated by another standing higher in the evolutionary scale, explained much that was otherwise inexplicable in the

phenomena of nervous disease. This swing back to the physiological aspect was quickened by the exquisite researches of Sherrington, and the issue of his "Integrative Action of the Nervous System" in 1906 marks an epoch in the progress of neurology.

Integrative Action of the Nervous System.

We then began to appreciate that the existence of the central nervous system was due to the necessity of producing coherent action in a plurisegmental organism. Out of the primitive materials at her disposal, Nature was forced to develop a mechanism capable of integrating the physiological forces evoked by relations with the external world. As the animal rose in the evolutionary scale, the functions required of the nervous system became more and more complex, and out of the anatomical structures of a lower organism had to be developed machinery capable of exercising these higher activities.

This was only possible by integrating the crude physiological processes excited by external stimulation or arising in response to the action of internal forces. A prick excites a universal tendency to withdraw the part exposed to stimulation; it can also evoke a highly organised movement, such as the scratch reflex, capable of removing the noxious object.

But such reflexes are pre-ordained and admit of no choice. It became necessary, therefore, to develop a controlling mechanism that would permit the animal either to attack the stimulus locally or to evade its action by flight. Finally, with the development of the neopallium, was given the power of voluntary choice; the reaction was no longer unconscious, but could be preceded by a definite act of discrimination.

This adaptation to a clearly determined end demands a multitude of adjustments, and such integration is the business of the central nervous system. It can only be carried out by utilising, in a modified form, functions originally developed for a somewhat different purpose. Thus, the withdrawal movement, which forms the basic reaction to pricking the sole of the foot, is controlled by higher centres in the mid-brain and forms the flexor aspect of the stepping reflex. But, when this higher influence is completely removed, as, for example, by total transection of the spinal cord, the lower reflex becomes manifested in its primitive form as a pure movement of withdrawal, accompanied by evacuation of the bladder and rectum.

Afferent Impulses from the Viscera.

Structure is anchored in the past, and expresses in its anatomical dispositions functions which have passed away. Many of them have been carried up to centres of more recent origin, whilst others are exercised normally, in a refined form, under the control of those higher in the evolutionary scale. But nothing remains in its old form, unless it is of utility to the organism under some possible conjunction of circumstances.

Thus, the afferent impulses from the viscera do not normally enter consciousness. The eupeptic knows nothing of the processes of digestion, beyond a certain gentle sense of well-being. But, under abnormal conditions, afferent impressions from the internal organs are capable of arousing pain and discomfort. When this occurs, one form of this sensory disturbance is referred to the superficial structures of the body and is associated with areas of tenderness corresponding to a segmental arrangement of the central nervous system. This is not a "hyperæsthesia," but a tendency to react more violently to any stimulus capable of evoking discomfort. The threshold is not materially lowered, but the vehemence of the response is greatly increased.

Now, this over-reaction is associated with reflexes which still reveal their old defensive character. As an answer to visceral pain, the abdominal muscles become tonically contracted and the leg is drawn up on the affected side. The sufferer is forced to creep into some sheltered place and to lie curled up, till he either dies or recovers. All capacity to move as a whole is abolished; the reactions of the part affected now dominate the activity of the complete animal. Visceral reflexes of this order are antagonistic to general movements, and this is expressed not only in muscular immobility, but in the mental attitude which accompanies visceral pain.

Pain is the oldest defensive reaction and potentially painful stimuli are the basis of all primitive reflexes. It is, therefore, of importance for higher development that these impulses should be rendered less effective in favour of those impressions which lead to a more general and discriminative response. But, although they are controlled and even abolished, the mechanism underlying the production of pain must remain in full physiological activity, ready to play its part, should occasion arise, in the defence of the body against noxious influences.

Control of Higher over Lower Nervous Centres.

The functions of the central nervous system are not a palimpsest, where a new text is written over an earlier manuscript, partly erased. The more primitive activities have been profoundly modified by the advent of the new centres, which utilise some of the faculties originally possessed by the older mechanism. In many cases, the higher function could not be exercised without the existence of these lower powers which it dominates and controls.

When, however, the higher mechanism is thrown out of action, the functions of the lower centres are free to exhibit their activity unchecked. Jackson insisted that the manifestations due to a lesion of the central nervous system must be considered from a negative and a positive aspect. Injury to the pyramidal system was shown negatively in the loss of the finer voluntary movements, but the activity of the lower centres, released from control, was evident in the spastic rigidity of the paralysed parts. In the same way removal of the control normally exercised by the cortex over the activity of the optic thalamus leads to the remarkable condition known as thalamic over-reaction;[1] all stimuli capable of evoking discomfort, and in some cases even pleasurable excitation, cause an exaggerated response on the affected half of the body. This is not due to "irritation"; it is due to release. It is the direct consequence of loss of that control normally exercised by the cortex over the activities of the optic thalamus. Once this control is removed by disease, the lower centre reacts unchecked to any stimulus capable of exciting a response.

It has been the custom to call upon a hypothetical "irritation" to explain all such positive manifestations of nervous energy. The violent flexor spasms and the outbursts of excessive sweating, which occur when the spinal cord is injured, have been attributed to this cause. In reality they are the expression of a diffuse and massive response to stimuli, applied to parts below the level of the lesion; they are manifestations of a primitive mode of reaction, due to removal of control from above. Involuntary movements in hemiplegia, automatic acts following an epileptic attack, the emotional utterances in aphasia are all examples of the same phenomenon.

The condition of sensibility during the protopathic stage of recovery from a peripheral nerve lesion is another instance of a primitive mode of reaction, released from control by the tardy restoration of the epicritic mechanism. Normally the massive "all or nothing" response of the more primitive system is held in check by the localised and discriminative sensations, due to excitation of the epicritic end-organs. But, when the one set of afferent impulses is permitted to play on the ultimate sensory centres unchecked by those arising in the higher mechanism, the response becomes massive and diffuse, and extensity becomes of greater import than intensity.

Importance of Scientific Principles in Neurology.

Had we applied Jackson's law, that the functions of the nervous system are integrated on evolutionary principles, neurology would not have made so many excursions into the wilderness. He taught us that a lesion of the cerebral cortex caused disorder of movement, not paralysis of the muscles. This lesson, however, was not applied to the other functions of the cortex. Much time was wasted on topographical localisation of various sensory centres before the nature had been determined of the functions exercised by the cortex. Now we know that, as far as somatic sensibility is concerned, the cortex is responsible for the appreciation of spacial relations, for the power of responding to different intensities of stimulation, and for the capacity to recognise similarity and difference in external objects brought into contact with the body. The cortical centres are not concerned with the crude appreciation of touch, pain, heat, and cold.

Such principles are not only of theoretical importance; they are perpetually thrust before the neurologist in his

[1] THE LANCET, 1912, i., 79.

daily work. Clinical diagnosis is a by-product of scientific investigation. It is impossible to expose every patient to laborious scientific examination, nor would it serve any useful purpose to do so; but the simple tests employed in the wards are valueless until they have been calibrated by more elaborate investigations. The man who says he can obtain all the information he wants, in cases of injury to peripheral nerve, by means of a pin and a piece of cotton-wool depends on someone else to teach him the significance of these empirical tests. They have no scientific value until the data they yield are correlated with results reached by methods capable of measurement.

The charm of neurology, above all other branches of practical medicine, lies in the way it forces us into daily contact with principles. A knowledge of the structure and functions of the nervous system is necessary to explain the simplest phenomena of disease, and this can be only attained by thinking scientifically.

Consideration of Leading Principles.

Let us then consider some of the leading principles which the candidate of the future must master in the course of his initiation.

Effect of Lesion on Complex and Simple Functions.

(1) When any level[2] of activity is attacked the most complex functions, and those which have appeared most recently, are the first to suffer. They are also disturbed to a greater degree and to a wider extent than those which are simpler or more inevitable in their expression.

An excellent example of this rule is seen in the effect of a lesion of the sensory cortex on the appreciation of the spacial aspects of an external stimulus. Tests which demand recognition of movement in three dimensions are more gravely affected than such a comparatively simple one as localising the position of the stimulated spot; for, with the precautions we habitually adopt, this is an exploration in one dimensional space. Division of the spacial aspects of sensation according to one, two, and three dimensions is obviously arbitrary; but the tests we apply become more or less complex and difficult according as they demand recognition of relations in space of three, two, or one dimensions. Consequently, the records obtained by measuring the extent of passive movement, which can be appreciated in the affected limb, are more gravely and extensively affected than those yielded by our method of testing localisation.

Negative and Positive Manifestations.

(2) The negative manifestations of a lesion appear in terms of the affected level.

Thus, if those parts of the cortex are injured which are associated with speech the consequences are not an affection of some totally different function, such as visual or auditory images, but are shown in terms of defective speech. The business of a clock is to show the time. Faulty action of the mainspring may cause it to go fast, to go slow, or to stop. But we cannot look at the face of the clock and say, "That is strong mainspring time;" all we can say is that the clock is fast. So the negative manifestations of a cortical lesion affecting speech are presented to us in the form of a disturbance of speech, not as a destruction of images.

In the same way, morbid conditions at the reflex level appear as changes in the reflexes; a disturbance of cerebellar activities is seen in incoördinate movement; whilst an injury to the sensory cortex affects the discriminative aspects of sensation—a purely mental function.

(3) A negative lesion produces positive effects by releasing activities normally held under control by the functions of the affected level.

I have already given many illustrations of this law. The phenomena of the mass-reflex after injury to the spinal cord and of spastic rigidity in hemiplegia are examples on the motor side; protopathic sensibility and thalamic over-reaction illustrate similar conditions amongst afferent activities.

Evolution of Functions of Central Nervous System.

(4) The functions of the central nervous system have been slowly evolved by a continuous process of development. The methods by which this gradual progress from lower to higher efficiency has been reached are still manifest in the phenomena of its normal activity.

Thus, the lowest reflexes give the most definite response; there is little or no choice, the answer is inevitable. They are, as Jackson expressed it, highly organised. But further development of the needs of the animal demanded a reaction that was less fixed; some variation must be permitted. This led finally to the domination of many reflex manifestations by consciousness. What at lower levels appeared a variable response became, with the progress of evolution, voluntary control.

Integration of Function.

(5) Integration of function within the nervous system is based on a struggle for expression between many potentially different physiological activities.

Let us consider the following example, drawn from the afferent side. A metal test-tube, containing water at 45° C., normally evokes a sensation of pleasant heat. But it is easy to show that this temperature, suitably applied, stimulates the cold-spots and then appears to be cold. If, by chance, both the end-organs for the reception of heat and cold are absent, pain is produced. Thus, the same temperature is capable of exciting heat, cold, and pain; and yet, under normal circumstances, it evokes a sensation of pleasant warmth. Evidently, the incompatible impulses, due to stimulation of the cold- and pain-spots, are prevented from reaching consciousness.

Such integration occurs at several stages during the passage of afferent impressions through the central nervous system. Those, alike in their qualitative potentialities, are gathered together, whatever may have been their origin, at the periphery. Thus, all impulses capable of arousing pain come together in the spinal cord. In the same way, there are separable paths for those associated with sensations of heat and cold. On higher physiological levels is fought out the struggle for final dominance, and of the warring impulses one group only excites a conscious response.

Processes Concerned in Integration.

The processes by which this integration is rendered possible are three in number. First of all, those impulses potentially of a like sensory quality are gathered together. Secondly, all impulses capable of exciting sensations of a different quality are rejected by the receptors which guard each functional level. The third method is manifested in the phenomena of adaptation. Water at 30° C. may appear under suitable external conditions to be neither hot nor cold. But when the hand has been previously soaked in water at 45° C. for some time a temperature of 30° C. will seem to be cold. Conversely, adaptation to water at 15° C. converts 30° C. into a warm stimulus. This power of adaptation to the conditions of the environment and consequent shifting of the neutral points is one of the most important factors in the mechanics of integration. No stimulus acting over a long period can remain continuously at the same level of efficiency; it leads to a state increasingly favourable to the appearance of the opposite phase of activity. This is the essential condition underlying the tendency to biphasic reaction, so characteristic of the central nervous system.

These three processes—acceptance by similarity, rejection by difference, and biphasic dispositions—form the main features of the physiological functions of the central nervous system. They are factors which lead to integration, whether we are dealing with reflexes or with such psychical acts as sensations.

They are interposed between the vital consequences produced by the impact of a physical stimulus on peripheral end organs and the final processes of consciousness. We have no right to speak of psycho physical parallelism; we ought rather to consider, on the one hand, physiologico-physical responses, and, on the other, psycho-physiological relations.

Thus, between the impact of a physical stimulus on the surface of the body and the movement or sensation it evokes, lie the innumerable reactions of the physiological level. Here the form assumed by the conscious response is prepared to a degree scarcely suspected until recently. Many of the impressions produced by a single external stimulus are incompatible with one another, and some of them must give way in the conflict. But the result of the struggle is not fixed or pre-ordained; it may be reversed by some previous

[2] The word "level" is employed throughout in a strictly functional sense. Any one anatomical organ of the central nervous system may exercise functions of more than one physiological level. Thus, the optic thalamus contains not only the termination of the fillet, but also the centre for the affective aspects of sensation. For the same reason a lesion of the post-central cortex not only produces loss of certain sensory faculties, but may also cause hypotonia in the affected parts of the body.

occurrence which has changed the disposition of the central nervous system. The form assumed by a reflex may be determined by the character of the movement which preceded it, and the phenomena of sensory adaptation depend upon the active influence of the past in present events.

Moreover, the general resistance of the central nervous system to certain impulses varies greatly at different times and in different persons. This is particularly evident in the case of pain. We are all subjected to innumerable painful impressions, which under normal conditions never reach consciousness; but if the resistance, either local or general, is lowered these impulses may underlie definite sensations of pain.

We neurologists are brought into daily contact with these diverse functional reactions. We work in the passage-way between the physical universe and the dwelling-place of the mind. We can watch the processes of evolution, visible in the actual behaviour of the central nervous system. We see the coming and the going, and we alone can record which of the many aspirants has conquered the right to enter or to leave that council chamber of human activities.

WAR NEPHRITIS:

A CLINICAL STUDY OF EARLY CASES.

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So many able articles have been written on the subject of war nephritis that some apology seems necessary for an addition to the literature. But in spite of much work on the disease its etiology remains obscure. Several different theories have been put forward and have been discarded, so that at present there is a tendency to dispute the existence of a definite clinical entity and to ascribe the prevalence of renal disease on the Western front to a diversity of agents.

In my work on the medical side at a C.C.S. I observed certain features in the onset and course of war nephritis that seem to throw a fresh light on the nature and origin of this affection. The present paper is based primarily on personal study of 50 cases in the early stages, but I have freely drawn on the richer experience of other writers.

Varieties.

While the great majority of cases of acute nephritis seen at the front correspond to the picture of war nephritis, other forms occur which resemble those seen in civil practice. Most observers agree in dividing cases into three main groups: (1) recurrent nephritis; (2) infective nephritis; (3) war nephritis.

(1) In a certain proportion of patients, with or without a previous history of renal disease, chronic changes are present in the kidneys. Such men may suffer from an exacerbation of their disease under the strain of active service, or may fall easy victims to a superimposed war nephritis. It is notorious that a patient who has apparently made a perfect recovery from war nephritis is liable to a recurrence if sent again to the front. But it is certain that the large majority of patients who contract war nephritis have kidneys which have been quite efficient during arduous training at home.

(2) The term "infective nephritis" has been applied by Keith and Thomson[1] to the acute nephritis which is secondary to an acute focal disease. Such cases are not common in the Army and often show no œdema. They may be distinguished by the concomitant symptoms and by the result of functional tests[1]; they are accordingly excluded from the present series.

(3) War nephritis proper comprises those types of nephritis which seem peculiar to active service conditions. While all grades of severity are encountered, there are two main clinical types: (*a*) the common form characterised by breathlessness, œdema, and the urinary signs of acute nephritis; (*b*) a smaller group distinguished by hæmaturia and involvement of the lower urinary tract as well as of the kidneys, but without œdema as a rule. This group was first classified by Abercrombie under the designation of "lower tract cases."[2]

Owing to the occurrence of mixed types and the occasional transition of the second type into the first no sharp line of distinction can be drawn.

Incidence and Distribution.

A survey of the literature shows substantial agreement on the main features bearing on the origin of the disease:—

Since the American Civil War nephritis has been a rare disease among armies in the field until the present struggle.

War nephritis first appeared on the Western front in the spring of 1915. Since then the rate of incidence has continued about the same.

The disease shows distinct seasonal variations, the rate rising in cold weather and falling during the warm summer months.

Troops in the front line are mainly attacked. Officers are relatively exempt and cases are uncommon among units that are well housed.

Civilians in the war zone have not suffered.

The liability to the disease appears to increase somewhat with age. But this opinion has little statistical evidence to adduce.

Previous renal disease or a former attack of war nephritis predisposes to nephritis at the front. In one case of my series there was a family history of nephritis. The father and eldest brother had died of Bright's disease before the war; the second brother and the patient himself (a soldier of 18 years' service) contracted war nephritis; while the two younger brothers had also served in France for a time but had escaped the disease.

Other evidence is negative; it is impossible to regard scarlet fever, mineral poison, or chlorinated water as important factors.

Onset.

The circumstances attending the onset of nephritis are quickly forgotten by a patient. Most cases, however, are sent to a C.C.S. as soon as the diagnosis is made, so that the history taken on admission is fairly reliable.

According to the manner of onset of nephritis patients may be divided into two main groups, (*a*) with antecedent symptoms and (*b*) without.

(*a*) With antecedent symptoms. In about 40 per cent. of cases in this series a period of ill-health or definite illness lasting from 1 to 5 weeks had preceded the symptoms of nephritis. The features of this illness were fairly uniform; the patient felt ill and weak, and complained of headache, with pain in the back and legs. All had carried on for most of the time, though many had been excused duty on account of fever, while four patients had been admitted to Field Ambulances for P.U.O.

Respiratory catarrh had accompanied the fever in three patients; others had had a cough for several months (in the winter) but it was not affected by their illness.

Two patients gave a definite history of fever and hæmaturia with pain in the back and frequent micturition that had lasted about three days. This occurred 3½ weeks and 10 days respectively before the appearance of œdema and breathlessness; in the interval both patients had returned to duty.

(*b*) Without antecedent symptoms. In the remaining cases (60 per cent.) signs of kidney disease were among the first to attract attention. Six patients had simply noticed increasing breathlessness with a gradual onset of œdema. In no less than 19 patients the signs of nephritis appeared within a day or two of acute fever. It is true that a record of this fever previous to admission was often unobtainable, but the history and the degree of fever when transferred to the C.C.S. left little doubt but that an even higher temperature had been present before. Soldiers rarely complain of "fever"—a patient with a temperature of 103° will complain of headache, pains elsewhere, faintness, or even constipation! If he shows definite signs of nephritis his temperature is often not taken, since it is unnecessary for diagnosis. When cases of nephritis are not seen until a few days after onset a short initial fever will be missed.

The remaining five patients described a similar acute onset closely following a respiratory catarrh. They showed fever, with coryza or sore throat and bronchitis.

To sum up, the result of this inquiry was to confirm Abercrombie's statement, founded on 500 cases, that the onset of war nephritis was almost invariably attended or preceded by fever.[2]

Early Symptoms of Nephritis.

The first symptoms of actual nephritis are an increasing breathlessness and the appearance of œdema, generally with more or less cough, headache, and pains in the back and legs. Urinary symptoms are only complained of in the special lower tract type.

For descriptive purposes the features of nephritis may be arranged in three categories: (*a*) respiratory phenomena; (*b*) renal signs; and (*c*) general symptoms.

(*a*) *Respiratory Phenomena.*

The general complaint of dyspnœa in the early stages and the frequency of respiratory complications, especially in winter, are striking features. Breathlessness appears most pronounced in those patients who have continued manual work or marching in the early stages of nephritis. Patients who have been kept at rest on account of fever, &c., before the onset of nephritis rarely exhibit dyspnœa.

The origin of this symptom is uncertain. It is rarely dependent on an acidosis,[1 3] nor does examination show signs of cardiac embarrassment. Changes in the lungs are present, though the dyspnœa seems disproportionate to the physical signs. In all patients with œdema moist crepitations and defective air entry may be found over dependent parts, and often rhonchi scattered over the rest of the lungs. The pathological studies of Dunn and McNee[4] suggest that there may be obstruction of air entry to the infundibula, and it is possible that dyspnœa depends on an œdema of the lungs, rapidly intensified by exertion, such as occurs in cases of phosgene gas poisoning. The symptom is often relieved by coughing, sometimes by change of posture.

(b) *Renal Signs.*

Œdema is often moderate and only apparent on the face and legs. When the patient is put to bed it tends to leave the lower extremities and to accumulate in the lumbar region. Pain in the back is by no means a constant symptom except in cases of hæmaturia, when it is often severe.

Urine.—There is usually a moderate reduction in the volume of urine, marked oliguria is uncommon, and suppression very rare. In some patients the greatest diminution in amount seems to occur some days later than the onset. There is little relation between the daily quantity of urine and the severity of the renal lesion, but a patient with persistent oliguria and marked albuminuria makes a tardy recovery.

Density.—The specific gravity of the urine in the early stages corresponds generally with the amount passed. It never shows a higher concentration than normal, and is often of low density in spite of oliguria.

Albuminuria.—The amount of albumin present varies greatly. In severe cases it may rise to between 1 and 2 per cent.; mild cases may show no more than 1 per 1000 by the time of admission.

Cellular contents.—Gross hæmaturia is a characteristic of "lower tract" cases, but is common in others without signs of irritation of the urinary passages. Microscopically, red blood corpuscles and leucocytes may always be found in the sediment of early cases. Casts are usually plentiful, epithelial and granular forms predominating.

(c) *General Symptoms.*

These may result from several factors—the causative agent of the nephritis, secondary infections, or the impairment of renal function.

Pyrexia.—In the great majority of cases fever precedes or accompanies the onset, as has been described above. It is usually of short duration, so that the temperature is falling or may have disappeared by the time the patient reaches a C.C.S. The degree, nature, and duration of this initial fever shows little correspondence to any bronchitis or other catarrhal condition present. But a more lasting pyrexia of low grade seen in some patients does appear to depend on a definite semi purulent infection of the bronchial tracts.

The general course of war nephritis is afebrile, the patients frequently showing a subnormal temperature, especially in the morning. Recurrences of pyrexia are not uncommon[2] and will be described later.

The pulse is moderately accelerated during the initial fever, but the rate is soon slowed, even before the temperature has settled. A definite bradycardia is the rule later; in most patients a pulse-rate under 50 may be counted on occasion.

The blood pressure, particularly the systolic reading, generally shows a moderate elevation while the œdema lasts and fever is absent.

Pains.—Pains in the limbs are almost as common as in the back; they appear during the initial fever, but are prolonged into the apyrexial period, and are apt to be aggravated at night, keeping the patient awake. In some patients the pains are located chiefly in the shins, but, as in most cases of trench fever, they are rarely confined to those parts.

Headache is often an early sign and is aggravated by coughing. When persistent it is usually associated with a fairly high blood pressure and urea retention.

Spleen.—The spleen showed enlargement in all my cases, and in 80 per cent. became palpable. When considerable œdema was present examination was unsatisfactory, but on its subsidence the organ could generally be felt. In early cases there is often tenderness on pressure over the splenic area.

Blood.—There are no striking changes in the number and variety of the white cells. A differential count usually shows a reduction of the polynuclears, with a corresponding increase in the mononuclear varieties, particularly the larger forms. In prolonged cases a moderate anæmia develops, but persistent hæmaturia is productive of rapid anæmia proportional to the severity of the symptoms.

Course.

The course of war nephritis is seldom uniform, and it is impossible to judge of the severity and outcome of the disease from the nature of the early symptoms. The first sign of approaching recovery is the spontaneous appearance of a diuresis which quickly reduces the œdema. This critical event may occur within a week of the onset in mild cases or be deferred for a month or longer in other patients, while severe cases may reach a tardy convalescence without sudden polyuria.

I had not studied early cases long in the wards when I was struck by a periodicity that seemed to underlie the manifestations and mark the course of war nephritis. Thus the daily output of urine would increase at regular intervals or show periodical falls with a temporary increase in the albuminuria or a visible return of hæmaturia. A critical diuresis, too, would often be temporarily interrupted for no apparent reason. These slight recurrences or relapses were often accompanied or preceded by a slight variation in body temperature or by a distinct febrile reaction of three days' duration. The pulse varied with such change and the blood pressure fell, though there were no signs of any complicating infection.

At this time I was engaged in studying the splenic enlargement that occurs in trench fever. Major J. H. Lloyd, R.A.M.C., had told me that if percussion were employed as well as palpation a definite increase in the size of the spleen could be made out in trench fever, although it was impossible to feel the organ when it was only moderately enlarged. I had not hitherto employed this method, and was somewhat sceptical of its accuracy. But by dint of constant practice I found one could follow an enlargement of the spleen with surprising ease in most cases, and that the results agreed with the findings on palpation. One could trace an enlargement up to the costal margin where the organ became easily palpable, and note the degree of recession after it could no longer be felt. When percussion alone can be employed it is, of course, necessary to obtain a resonant note over the stomach and colon; in doubtful cases an evening examination was often successful.

The use of this combined method, when daily examinations were made, gave most interesting results in trench fever. In all cases where a previous enlargement was excluded the spleen showed alternate advances and recessions at regular intervals of five or six days (rarely four and a half days). This phenomenon occurred in every form of the disease, whether the fever was relapsing or continuous, and in cases where no definite febrile relapse followed the initial bout a second descent of the spleen was evident at the usual interval.

Various other diseases were taken as controls, but none gave the same phenomenon until I applied this method to cases of war nephritis. In this disease identical changes in the degree of splenic enlargement were constantly found, of the same periodicity as in trench fever. It became at once evident that the signs of periodicity of this disease were closely related to the accompanying changes in the spleen.

The reliability of this method has been tested in diagnosis and prognosis. Thus, it is possible to distinguish a continuous pyrexia due to trench fever from paratyphoid and to foretell an imminent relapse in both trench fever and war nephritis.

Clinical Types.

It will be convenient to consider the course of war nephritis according to the general characters shown. The two main types have been mentioned—the lower tract and the ordinary; this latter, the largest, may be further divided into mild, moderate, and severe.

(1) *Lower tract type.*—There is usually an acute febrile onset, followed by hæmaturia, which is often profuse. The hæmaturia is accompanied by severe pains in the back, often radiating to the groins, and by frequent and painful micturition. Indeed, some patients show virtual incontinence, so great is the irritability of the bladder. There is no dyspnœa or œdema, as a rule, and little reduction in the quantity of urine passed. The colour of the urine may be bright red or brownish—due to some reduction of the blood pigment. Microscopical examination at this stage shows crowds of erythrocytes, many forming casts of the renal tubules. There is hardly more albumin than can be accounted for by the blood present. In my few cases (four in number) obvious hæmaturia lasted 4–5 days, with the exception of one severe case who continued to pass blood for 10 days.

As the hæmaturia declines the urine shows an excess of leucocytes, tract epithelial cells with some cellular and granular casts, and a trace of albumin. Relapses are frequent and are usually accompanied by fever and bone pains. The original case published by Abercrombie[3] had a temperature chart typical of trench fever with its successive relapses. Chart I. is taken from one of my cases, and shows an irregular fever with marked excursions of the spleen; the patient was evacuated before the critical diuresis—seen in similar cases—was reached. Another case showed a large palpable spleen on admission, with but slight subsequent changes in its size. Following the subsidence of the initial fever the urinary excretion fell and continued low for five days; the spleen then receded somewhat and diuresis began. I have seen two cases (not included in this series) with similar relapsing features in which muco-pus took the place of blood; bacteria were absent.

Peters and Stevens[4] have recently published a paper on this type of nephritis, with the results of cystoscopic examination. They found multiple small hæmorrhages into the bladder wall, but no ulceration, and they prove that the bulk of the bleeding comes from the kidney and renal pelvis.

The ultimate prognosis of these cases is good. But, as narrated before, too short a rest may be followed by relapse, with the symptoms of ordinary nephritis.

(2) *Ordinary type with œdema.*—(*a*) *Mild cases.*—Of these there were 8 in the present series of 50. The patients usually gave a distinct history of one or more attacks of fever, in the course of which œdema made its appearance.

Examination of the urine showed albumin and casts on entry, but these signs disappeared when the patients were kept in bed and placed on a milk diet for a day or so. A critical diuresis followed, but in some cases oliguria continued for a time after the œdema and albuminuria had vanished. Charts II. and III. are representative of this group, and show the variations that mark their course better than any verbal description. The after-history of these patients is very favourable; they rarely relapse after evacuation to the base.

(*b*) and (*c*) *Moderate and severe cases.*—From observations at a C.C.S., necessarily limited to the early period of nephritis, it is impossible to make an accurate forecast of the subsequent progress of the patients in these groups. So these two groups will be considered together, so far as their early course is concerned.

Charts IV. and V. are representative of the moderately severe forms of war nephritis; Chart VI. shows a severe case: but they all agree in their fundamental characters, although they have been chosen to illustrate the variations that may occur. Thus Chart IV. shows a case, marked by considerable fever and relapse, in which the urinary excretion is seen to be closely associated with the periodical excursions of the spleen and is barely affected by the pyrexia. Chart V. illustrates another clinical form in which an almost level urinary output runs parallel to a fairly constant degree of splenic enlargement. The first indication of a relapse was on the ninth day of œdema, when the patient complained of pains in the back and legs. Following this, the spleen receded slightly, but there was no appreciable improvement in the condition of the kidneys. However, exactly six days later the spleen enlarged perceptibly and then receded to a greater degree than before, and diuresis at once set in.

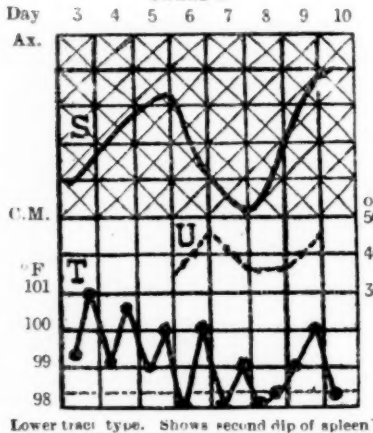
It will be noticed that in the first stage of nephritis a diminution of urinary output is apt to follow after a temporary increase in size of the spleen (Charts II., III., and IV.), but that in the later relapses these phenomena tend to coincide more closely (Charts II. and V.). During the early stage of severe nephritis (Chart VI.) the urine may show only a short temporary increase in amount between the relapses timed by the spleen.

The features of these periodical relapses may be summarised as follows:—General: There is a tendency to febrile

TEMPERATURE CHARTS.

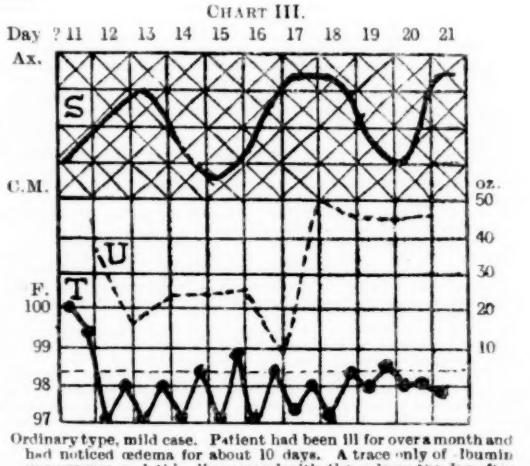
In these temperature charts the daily output of urine is indicated by a broken line (U), reading from the figure column on the right. The upper continuous line shows the variations in size of the spleen (S); an increase is denoted by a descent of this line. The normal size (Ax., mid-axillary line) is taken as the base line above and the costal margin, C.M., below; each space corresponds to a finger-breadth.

CHART I.



Lower tract type. Shows second dip of spleen at the usual time of the first relapse in trench fever (eighth day) quite independent of the pyrexia. Patient was evacuated before any diuresis occurred.

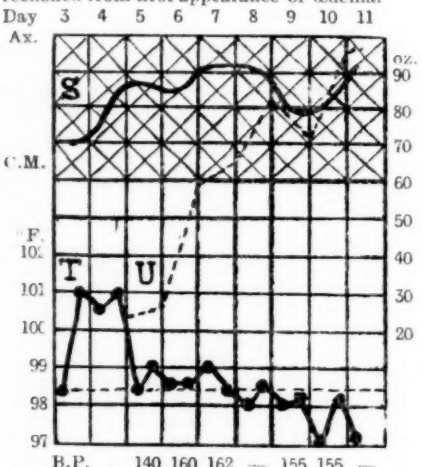
CHART III.



Ordinary type, mild case. Patient had been ill for over a month and had noticed œdema for about 10 days. A trace only of albumin was present and this disappeared with the œdema the day after admission. Note the regular phases of the spleen and continued oliguria after the usual signs of nephritis had disappeared.

CHART II.

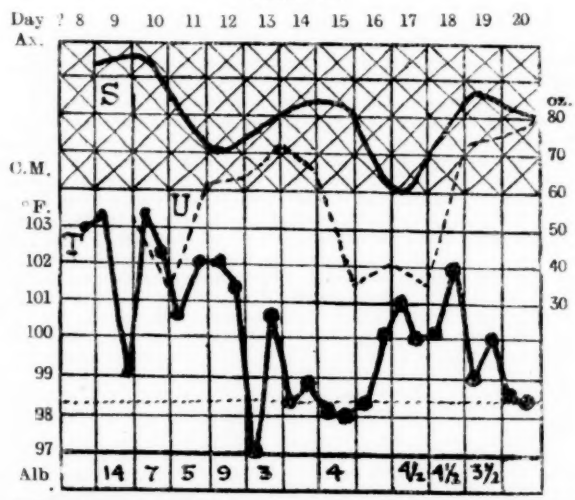
In this and following charts day of disease is reckoned from first appearance of œdema.



B.P., Systolic blood pressure. Alb., Albumin per 1000.

Ordinary type; mild case. Shows early diuresis with disappearance of albumin and œdema. Periodicity indicated by a slight secondary descent of the spleen and interruption of diuresis on ninth day, six days after first recession of the spleen. Note changes in blood pressure.

CHART IV.



Ordinary type, moderately severe. Patient complained of no symptoms except œdema of probably a week's duration. He showed high fever (leucocytes 4800), extreme œdema with much blood and high albumin content in the urine. Lungs clear; no dyspnœa. Chart shows recurrent enlargements of the spleen at 6-days interval and accompanying variations in the urine. The relative independence of the splenic enlargement and the course of the pyrexia is characteristic of the continuous type of trench fever.

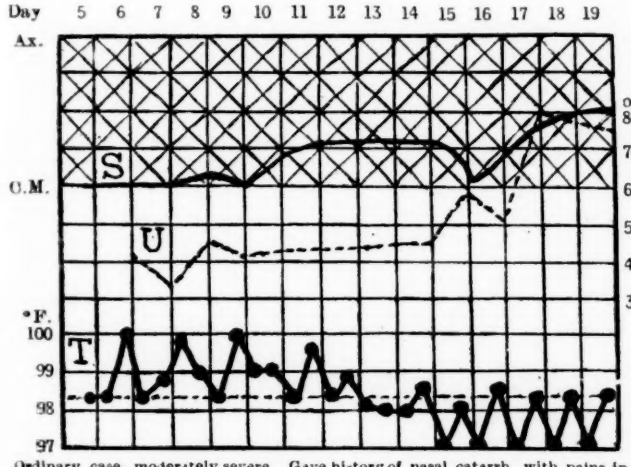
reaction. In slight cases this may only be shown by taking the temperature every two hours; it may be completely absent. The pulse is slightly quickened, and there is usually a definite drop in blood pressure. General aches and pains often precede the relapse by a day.—Spleen: The spleen shows an increase in enlargement and may become tender.—Renal: The excretion of urine falls in amount, while the albuminuria shows a temporary increase, sometimes with a return of hæmaturia. Functional studies reveal a much greater degree of renal block during this phase than is apparent from clinical signs.[1]

So far these periodical recurrences have been described as simply interrupting the course of the disease. But any one of them may reach serious proportions, so that the kidney may suffer more severely in a relapse than in the original attack.

Diuresis: A critical diuresis may occur early and be uninterrupted; in one of my cases as much as 174 oz. were excreted in the 24 hours, although the patient was kept on the same amount of fluid as before. More commonly the diuresis is temporarily checked by one of the periodical phases that characterise the disease. During this diuresis the blood pressure remains elevated and the urinary concentration falls. The œdema rapidly diminishes and the kidneys excrete retained products. Following the polyuria the blood pressure falls and the specific gravity of the urine slowly rises, the albumin and casts disappear or are reduced to a low amount. How long the spleen may continue to exhibit enlargement I am unable to say.

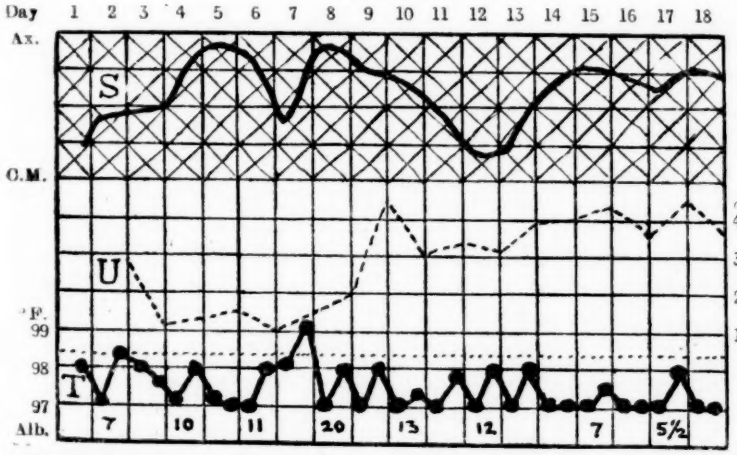
The further course of nephritis as seen at the base is well described by Keith and Thomson.[1] They divide cases into resolving and non-resolving groups; in each relapses are frequent and slight recurrences numerous. Resolving cases exhibit a distinct diuresis, with a rapid disappearance of œdema, diminution in the albuminuria, and a relatively good renal function. The non-resolving group is characterised by the slow disappearance of œdema and delayed diuresis, persistence of blood and albumin in the urine, the development of permanent retinal changes, and grave impairment of renal function.

CHART V.



Ordinary case, moderately severe. Gave history of nasal catarrh, with pains in the legs and fever one week before admission. Dyspnœa, cough, and œdema appeared about three days after onset of his illness. He had a general bronchitis which continued throughout. Chart shows a closely parallel course between the excretion of urine and the degree of enlargement of the spleen. Note check of terminal diuresis; it would probably proceed after next phase of spleen.

CHART VI.



Ordinary type, severe case. No symptoms until the appearance of œdema the day of admission. Shows an almost apyrexial course, with unusually well-marked excursions of the spleen. The periodicity governing the urinary features can be appreciated only by observing the time-marking of the spleen. The first relapse was more severe than the second and the kidneys were severely damaged; signs of mild uræmia were present (blood urea 0·145). Note slight indications of the relapses in the temperature readings.

Complications.

Respiratory.—Bronchitis is very common in the early stages, particularly in patients with considerable œdema, or who are suffering from a winter cough—so common in the trenches. As a rule it disappears with the subsidence of œdema, but may develop into a septic process with purulent sputum and slight fever. Two of my patients developed lobar pneumonia; two others fell victims to the recent epidemic of "influenza" when the wards were full of such cases. But it was remarkable that these complications had very little effect on the course of the nephritis.

It has been suggested that the relapses seen in war nephritis are due to complications in most cases. My experience does not support this view, and it is possible that the converse is true. For patients with febrile recurrences show an aggravation of an existing bronchitis with a return of their fever, and may develop pneumonia as an extension.

Uræmia.—Other complications, such as uræmia, retinitis, cerebral hæmorrhages, &c., may occur, as in other forms of nephritis. These have been fully described by observers of larger experience than the present writer, and only need to be mentioned.[1 2 3]

Summary and Discussion.

The course of war nephritis is marked by more or less evident changes at regular intervals of five or six days. The only other disease prevalent in the war that exhibits a similar periodicity is trench fever. Hence the question arises, Is war nephritis a complication of trench fever?

As far as the distribution and general features of war nephritis are concerned, there appears no valid objection to this suggested relationship. It is generally admitted that certain cases of war nephritis show all the signs of trench fever; but the occurrence of such cases is not too frequent to be explained by mere coincidence. For this reason I have refrained from choosing such examples for the illustrative charts. On the other hand, no one who has had a large experience of trench fever in the line will deny the great prevalence of mild types, characterised either by a single bout of fever of moderate range or by a very low grade of pyrexia throughout. The liability of trench fever to recur months after apparent recovery is notorious. After exhaustion or chill, exposure to poison gas, or receiving a wound, a patient may suddenly develop acute fever again. This may happen to patients who

have no recollection of previous fever, in the same way apparently that a person leaving the tropics may show his first attack of malaria on reaching a cold climate. In these cases, it may be remarked, a chronic enlargement of the spleen is usually present.

These facts show that the types of fever encountered in war nephritis and its modes of onset may be paralleled in trench fever. But when we consider the identity of the diseases from a closer aspect we are confronted by points of difference: (*a*) Ordinary and experimental cases of trench fever, as studied in the wards, show little or no tendency to develop nephritis. (*b*) There is no proportion between the severity of the fever in war nephritis and the degree of renal damage. Many severe cases of nephritis show no definite fever. (*c*) War nephritis has a seasonal variation which is not apparent in trench fever.

Before dealing with these points it is worth while inquiring, What signs of renal damage are shown by ordinary cases of trench fever? It is well known that albumin, often accompanied by microscopical amounts of blood, is often present in the urine during the initial stage of trench fever. But this is not the most striking sign of renal damage. If the urinary excretion be watched certain patients will show a remarkable oliguria independent of the pyrexia and possible early albuminuria. The urinary flow may be almost suppressed for a period varying from 12 to 24 hours. Others may show a marked reduction for several days (like Chart III.) or pass a moderate quantity of low specific gravity urine without albumin after the fever has subsided. It is highly probable that this renal injury may progress to actual nephritis under unfavourable circumstances.

The seasonal incidence of war nephritis points to cold and exposure as predisposing agents. These factors may well turn the scale in trench fever. In an acute attack of this malady the patient is disabled by high fever, and is accordingly removed to shelter and receives careful attention. But a large proportion of milder cases of trench fever do not report sick or may simply avail themselves of a day's rest when circumstances permit. During his illness, therefore, the patient experiences all the hardships of life at the front. He is exposed to cold and wet, especially in the winter, and has a full meat diet, conditions which throw a considerable strain on kidneys injured by trench fever infection. Resolution may be impossible and nephritis results.

This theory meets the main objections put forward and is founded on clinical facts. But it is somewhat beyond the scope of this paper to follow further. My object is to point out a definite periodicity that distinguishes war nephritis proper, and to call attention to the close similarity between its general features and those of trench fever. Whether or not this coincidence depends on an identical infection can only be satisfactorily settled by experimental and laboratory work.

References.—1. Keith and Thomson: Quart. Jour. Med., No. 43, April, 1918. 2. Abercrombie: Journal R.A.M.C., August, 1916. 3. Dyke: Journal R.A.M.C., February, 1918. 4. Dunn and McNee: B. M. J., Dec. 8th, 1917. 5. Peters and Stevens: Jour. Amer. Med. Ass., June 8th, 1918.

NEPHRITIS IN RELATION TO THE RECENT EPIDEMIC OF INFLUENZA.

THE RESULTS OF AN INVESTIGATION OF 22 CASES.

BY C. P. SYMONDS, M.R.C.P. LOND.,
TEMPORARY CAPTAIN, R.A.M.C.

DURING the recent epidemic in the Army area an early fatal case of broncho-pneumonia, complicated by nephritis, led to a careful investigation of the urine in all broncho-pneumonias. It is the purpose of this paper to describe briefly a series of 22 cases admitted to this casualty clearing station with influenza, in which the presence of well-marked signs of renal disease in addition to broncho-pneumonia was associated with a high rate of mortality.

Symptomatology.

Previous illness.—No patient gave a history of previous nephritis or of scarlet fever. Four stated that they had never had any illness. Eleven had suffered from illnesses as follows: Nos. 4 and 11 influenza; Nos. 12 and 14 pneumonia; No. 1 "fits since he can remember"; No. 7 syphilis; No. 9 asthma and bronchitis; No. 13 measles and pleurisy; No. 16 malaria and dysentery in Palestine; No. 17 gassed a month previously; No. 19 colitis in India. From the remaining seven no histories were obtained.

Age.—The age in 18 cases ranged from 19 to 37, the average being 25·3 years. The age was not discovered in the remaining four cases.

Physique.—The average physique in the series was good, only two of the patients being in a category lower than "A." No. 9 for asthma and No. 20 for defective vision.

History of onset.—This was similar to that of other cases of broncho-pneumonia following influenza—a secondary rise of temperature, with breathlessness, pains behind the sternum or in the sides, and cough with purulent expectoration.

Clinical observations.—In only one case of the series (No. 1) was marked œdema observed, the distribution of the fluid in this case being general and the amount extreme. One case (No. 22) gave a history of swelling of the face and feet a day before admission, and was distinctly puffy under the eyes when first seen. In nine of the others it was noted that their faces "looked swollen," but there was no palpable œdema. The remainder showed no signs of fluid retention.

The physical signs in the chest were similar to those observed in other broncho-pneumonias, and varied only in degree and distribution, but dyspnœa seemed more urgent in relation to the amount of lung involved than in cases uncomplicated by nephritis.

The most constant feature of the nephritic cases was the early onset of an acute confusional mental state, progressing rapidly to noisy and active delirium, with incontinence of urine and fæces, and every appearance of profound toxæmia.

Expectoration ceased, cyanosis became extreme and yielded to ashy pallor, the tongue became furred and dry, the blood pressure fell rapidly, and death ensued often in 48 hours from the time when the patient first showed signs of mental confusion.

In the patients who recovered the systolic blood pressure in only one case fell below 95 mm. Hg, and the first sign of hope was a gradual return of consciousness with control over the sphincters.

Blood pressure.—In four cases the highest systolic blood pressure observed was 150 mm. Hg or over. In two it was not noted; in the remainder it was normal or low. But it must be remembered that these patients were suffering from an acute toxæmia, and their pressures were probably lower than in health.

This is shown by the following figures from Case 1, whose general condition was fair on admission, but who subsequently developed signs of poisoning. June 12th, systolic blood pressure, 170 mm. Hg; 13th, 140 mm.; 15th, A.M., 100 mm., P.M., 90 mm.; 16th, died. The kidneys of this patient show under the microscope definite endarteritis and chronic interstitial changes, as also to an even greater degree do those of Case 5, who was already delirious and livid when first examined, and whose highest systolic blood pressure observed was 105 mm. Hg.

Urine.—The volume in each 24 hours was seldom diminished more than might have been expected with the high fever and pneumonia, the lowest average daily output for the first two days being 30 oz. per 24 hours in Case 20, the highest, 65 oz., in Cases 6 and 10.

In the later stages it was, as a rule, impossible to get an accurate measurement owing to incontinence, but in four fatal cases the quantities collected in the last hours were as follows:—

No. 4.—40 oz.	in last	18	hours	containing 0·1% albumin.
No. 6.—15 oz.	,,	20	,,	,, 0·3% ,,
No. 10.—15 oz.	,,	18	,,	,, trace of albumin.
No. 15.—30 oz.	,,	18	,,	,, 0·6% albumin.

Of these, all except No. 4 also passed an unknown amount of urine into their beds.

In the cases which recovered, the average urinary output of eight the day before evacuation to the base was 49 oz. In one, Case 8, the most seriously ill who recovered, it was 35 oz. In the other two it was not recorded.

The quantity of albumin present varied from a moderate cloud to 3·0 per cent. in one case, and 2·0 per cent. in two others. In individual cases it varied a good deal from day to day—e.g., No. 11, June 25th, 0·5 per cent.; 26th, a trace.

In some cases—e.g., Nos. 5, 10, and 20—the albuminuria tended to clear up before death, but in most it remained high or increased, as in Case 14: July 4th, 0·025 per cent.; 5th, 0·2 per cent.; 6th, 0·4 per cent.; 7th, 0·6 per cent.; death.

Microscopical examination of the centrifuged urine gave much the same picture in all cases—an abundance of casts, both granular and hyaline, with a striking absence of blood cells; in only three cases of the whole series were any blood cells seen, and in these they were comparatively few.

The quantity of casts as a rule varied with the amount of albumin present, and diminished as the albuminuria cleared up in the cases which recovered. In only three of these, however, was the urine completely free from casts at the time they were evacuated to the base, although their temperatures had been normal for some days.

The casts also diminished in quantity with the decrease of albumin before death in Cases 5, 10, and 20, and it has been suggested that death in these cases was due to secondary infection of the lungs by organisms whose toxins had not

that selective hostility for the kidneys which those of the primary infective agent would appear to have.

Eye changes.—Captain H. V. White, R.A.M.C., kindly examined the fundi for me in 19 of the 22 cases. In no case were hæmorrhages or retinitis observed, but in Cases 1 and 4 œdema of the discs was noted before death.

Treatment.

Treatment was directed mainly towards the broncho-pneumonia, the patients being encouraged by every means to expectorate the purulent fluid which filled their bronchi. In the cases with high blood pressure venesection was performed with temporary relief of the cyanosis and dyspnœa. Oxygen was given freely by Haldane's apparatus or through intranasal catheters. For the nephritis the motions were kept loose and in some cases hot-air baths were given.

Sodium bicarbonate was given into the veins of two cases without apparent effect; in another patient draughts *ad libitum* of a 5 per cent. solution were followed by a return to sanity after a long period of delirium, and he eventually recovered; but another progressed from bad to worse under the same treatment.

Results of Post-mortem Examinations.

Morbid anatomy.—The lungs showed the appearances of purulent bronchitis and confluent broncho-pneumonia which were typical of all fatal cases seen in this epidemic. None of the kidneys showed any gross changes to the naked eye beyond a slightly adherent capsule. The spleen in most cases was enlarged and firm. In Case 1 the tissues were generally sodden, with excess of fluid in the serous cavities. In Cases 13 and 14 there were signs of terminal acute peritonitis. In Case 7 there was a syphilitic vegetation on the aortic valves (corresponding to a musical systolic bruit heard during life).

Bacteriology.—Routine bacteriological examination was not practicable, and the term influenza is used provisionally in referring to this series of cases; it may be assumed that they were suffering from infection by the causal organism of the epidemic.

In Case 20 Captain J. W. McLeod, R.A.M.C., performed the post-mortem examination and has kindly allowed me to refer to his notes. In films he found small Gram-negative bacilli in pus from the trachea and from the bronchioles; and in culture from the cut surface of a patch of solid lung he obtained a growth of a Gram-negative bacillus with the morphology of *B. Pfeiffer*, but a subculture of this failed to grow.

Morbid histology *.—Microscopical examination of the kidneys was made in the 11 fatal cases; all show congestion and varying degrees of tubular degeneration, but as post-mortem examination was in some cases delayed and the weather was hot, detailed examination of the tubules is of not much value. With regard to other abnormalities, however, the sections may be grouped as follows:—

Group I.—These sections from Cases 1, 3, 5, and 20 all show more or less evidence of an early stage of chronic interstitial nephritis—i.e., thickening of capsule, increase of interstitial connective tissue, endarteritis, and thickening of Bowman's capsules in the glomeruli. These changes, though early, are definite and widespread—not localised to any one area of a particular section.

Group II.—This group comprises the kidneys of Cases 4, 6, and 13, in which careful search reveals appearances which, though not uniform, are suggestive of pre-existing renal damage. The notes upon these are briefly given below.

No. 4.—No general increase in connective tissue; no endarteritis. In most of the glomeruli there is a fibrinous-looking coagulum filling up the space between the vascular tuft and Bowman's capsule. Hyaline thickening of some of the glomerular capsules, and one completely obliterated. Duration of fatal illness, eight days.

No. 6.—No general increase in connective tissue; no endarteritis. Some glomeruli show proliferation of endothelial lining and hyaline swelling of Bowman's capsules; in the boundary area there is increase in the perivascular connective tissue. Many hyaline casts in convoluted tubules. Duration of fatal illness, 12 days.

No. 13.—Capsule not thickened; patchy increase of hyaline connective tissue round arterioles and in Bowman's capsules. No endarteritis, but the glomerular arterioles look thicker than normal; a single fibroid glomerulus. Duration of fatal illness, eight days.

Group III., Case 7.—This section shows considerable thickening of the capsule; marked increase of connective tissue, both intertubular and periglomerular; this is of fibro-hyaline consistency and poor in nuclei, appearing young and œdematous. The glomeruli are not contracted; no endarteritis. Duration of fatal illness, five days.

Group IV.—In Cases 2, 10, and 14 the sections show no abnormalities worthy of remark except the congestion and tubular degeneration already described as being common to all.

Summing up these findings, it may be said that the four patients of Group I. were all, though apparently healthy, suffering from an insidious form of renal disease before they took the influenza. The significance of the changes described in Group II. cannot be estimated at its true value without comparison with the histological appearances of the kidneys of "normal" men within the same age limits. They suggest a very early stage of the process responsible for the lesions in Group I. The impression gained in Case 7 is that the interstitial changes are of longer standing than the five days' duration of the terminal illness.

Sections of the spleen were examined in nine cases.

In Case 14 only were definite hæmorrhages found corresponding to those described by Tytler and Ryle and others as typical of trench nephritis. In this case the hæmorrhages show up well in a spleen which is not unduly congested and are in process of invasion by large mononuclear cells which have taken up pigment.

In several others there is an extreme degree of congestion producing in one or two instances diffuse patches of agglomerated red cells not unlike the appearances shown in Tytler and Ryle's microphotograph No. 20 in their paper; but in the absence of any evidence of organisation and on comparison with specimens showing lesser degrees of congestion, I have hesitated to pronounce them hæmorrhages.

Sections of the lung show consolidation of broncho-pneumonic type.

The sections in all cases were prepared by Captain Adrian Stokes, R.A.M.C., for whose help and advice I am most grateful.

Following in tabular form are some of the main points in the cases.

No.	Urine.	Albumin-uria.(1)	Casts.(1)	Blood cells.	B.P.	Result.	Albumin-uria.(2)	Casts.(2)
1	48 oz.	+++*	++	A few.	170	D.	+++*	++
2	—	++*	++	,,	—	D.	++*	++
3	—	++*	++	,,	160	D.	++*	++
4	34 oz.	0·1%	++	None.	150	D.	0·1%	++
5	—	++*	++	,,	105	D.	Trace.	None.
6	65 oz	0·3%	++	,,	122	D.	0·3%	++
7	46 ,,	2·1%	+++	,,	130	D.	2·1%	+++
8	57 ,,	++*	+++	,,	—	R.	None.	—
9	38 ,,	3·0%	+++	,,	122	R.	,,	A few.
10	65 ,,	0·2%	++	,,	100	D.	Trace.	,,
11	36 ,,	0·5%	++	,,	115	R.	None.	—
12	33 ,,	2·0%	+++	,,	110	R.	,,	None.
13	—	0·8%	+++	,,	90	D.	0·8%	+++
14	40 oz.	0·6%	++	,,	110	D.	0·6%	A few.
15	40 ,,	0·025%	+	,,	118	R.	None.	,,
16	33 ,,	+†	+	,,	92	R.	Trace.	One.
17	37 ,,	+†	+	,,	108	R.	None.	None.
18	42 ,,	0·05%	++	,,	112	R.	,,	,,
19	40 ,,	0·05%	++	,,	95	R.	,,	A few.
20	30 ,,	0·2%	++++	,,	115	D.	Trace.	,,
21	—	+	+++	,,	130	R.	,,	One.
22	—	0·25%	+++	,,	160	‡	0·25%	+++

* No Esbach tubes available. † Less than 0·025 per cent.
‡ Sent down at once.

Urine: Daily output: average for first two days of observation. Albuminuria (1) = Highest degree noted; (2) when last observed. Casts (1) = Quantity at height of illness; (2) when last observed. B.P. = Highest systolic blood pressure noted (mm. Hg).

Summary and Conclusions.

1. These cases on the whole did not present a clinical picture typical of nephritis, and in most instances this would not have been suspected without examination of the urine. It was rather the man who looked poisoned by his broncho-pneumonia whose urine was found to be loaded with albumin and casts; delirium and collapse were the outstanding symptoms of the patient whose nervous centres and renal epithelium alike were overwhelmed by the toxins absorbed from his pus-sodden lungs. It is easy to imagine that once the kidney was damaged with consequently impaired ability to excrete the poisonous substances, the prognosis would be proportionately worse, and this vicious circle will account for the 50 per cent. mortality in the series of cases recorded, and the fact that, of a total of 21 men who died of influenzal broncho-pneumonia 11, as described above, had signs of severe renal damage.

On the laboratory side the abundance of casts with comparative absence of blood cells supports the view that the process in the kidney was one of acute degeneration rather than acute inflammation.

2. Microscopical examination of the kidneys shows in at least four cases (possibly also four others) evidence of pre-existing renal disease. This is out of a total of 21 deaths in all from broncho-pneumonia during the period under review, an incidence of at least 19 per cent. of "latent nephritics." The incidence of latent nephritis among "healthy" troops has been estimated from examinations of the urine by Maclean[2] working at the base at not more than 2 per cent.,

* This section was illustrated by a number of micro-photographs, the reproduction of which has not yet been executed.

by McLeod[3] among troops in the forward area at a rather higher figure. The present observations indicate either that the real proportion of men with latent nephritis among healthy front-line troops is much higher than it has been judged from examination of urines or that persons whose kidneys are previously damaged by disease are especially prone to die from broncho-pneumonia in this epidemic—the latter explanation appearing the more probable.

I have pleasure in thanking Lieutenant-Colonel J. Graham Martin, R.A.M.C. (T.F.), for permission to publish this paper, and the officers at his casualty clearing station for helping me to collect the material for it.

References.—1. Quarterly Journal of Medicine, vol. ii., No. 42, January, 1918. 2. Medical Research Committee's Publications. 3. THE LANCET, 1916, ii., 468.

TUBERCULOUS DISEASE OF HIP-JOINT.

A SIGN OF PATHOLOGICAL ACTIVITY.

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THE desirability of a trustworthy clinical indication of activity of tuberculous disease of the hip-joint which has long required treatment is, I trust, sufficient justification for the record of a sign the value of which has been confirmed by a somewhat lengthy experience in the treatment of surgical tuberculosis.

The Insufficiency of the Usual Indications.

The majority of text books are curiously vague, and rarely helpful in assisting those responsible for the treatment of tuberculous disease of the hip-joint in arriving at a decision as to when hip disease may be reasonably regarded as inactive. That there exists much doubt on this point I am convinced by the frequency with which an opinion is sought, and any additional aid in arriving at a conclusion may therefore be welcomed.

The time during which activity persists necessarily varies within wide limits, depending on the virulence of the infection, the resistance of the patient, the nature and extent of the lesion, the treatment adopted, the conditions under which treatment is applied, the existence of complications, &c. Obviously, merely to state a period during which recumbency, immobilisation and extension, or any other form of treatment for active disease of the hip-joint should be enforced is unscientific and of little value, for it does not take into account the varying factors already enumerated.

The temperature chart is of no value because, under suitable conditions, the temperature of an uncomplicated case of hip disease speedily becomes normal, and should remain so even while the disease is active. Pain likewise affords no clue, as with adequate treatment all pain is rapidly relieved and, indeed, is absent long before the disease becomes quiescent. The presence or absence of deformity, abscess, sinus, or added infection affords no sufficient guide, though each may, and should, influence decision.

In the absence of bony ankylosis, however, there remains one factor which is of supreme importance. In tuberculous disease of the hip joint the most constant and most marked evidence of activity is spasm of the muscles about the affected joint. As the disease becomes less acute spasm becomes increasingly difficult to demonstrate, until eventually it completely disappears. It may last be elicited in the following manner.

Description of the Sign.

If the femur, on the affected side, be grasped firmly in the region of the condyles it will be found that the head of the bone may be gently rotated within the acetabulum, either inward or outward, through a varying but often considerable angle. When this movement is checked, but the disease remains active, a further slight sharp rotation is instantly followed by spasmodic muscular contraction, not confined to muscles about the joint but extending to the abdomen and visible in the abdominal muscles, or still more easily demonstrated if the palm of the hand is placed on the abdomen between the iliac spines. Quite a gentle and painless but sharp rotary movement is sufficient to provoke this reflex spasm of the abdominal muscles. Naturally, it would not be attempted where the disease is obviously active, but in just those cases where doubt exists I have found it a sign of the utmost value. With a little practice the sign is easily and safely obtained if the disease is active.

Confirmatory evidence of activity, as indicated by muscular spasm, may at the same time be demonstrated in the following manner. In a child a finger and thumb of the hand not engaged in grasping the femoral condyles may be applied simultaneously to the two anterior superior iliac spines. During the first rotation of the femur on the affected side no movement is conveyed to the iliac spines. When, however, rotation has been checked and is sharply but gently continued, exaggerated movement in the same direction is transmitted to the iliac spines. With a healthy joint this type of movement is not apparent, with a hip-joint affected with improving but still active tuberculous disease it is very striking, even when the disease otherwise appears to be quiescent.

Bearing of the Sign on Treatment.

The significance of this induced spasm calls for brief comment. Failure to elicit it may not necessarily imply that there is no active disease, though very probably the disease is quiescent. Its presence certainly indicates an active lesion.

Its bearing on treatment depends upon the view those responsible for the patient take as to the nature of the treatment which should be adopted. Briefly stated, I hold the view that acute tuberculous disease of the hip-joint should be treated with the patient recumbent, the lesion immobilised, and extension applied to the limb of the affected joint to prevent or correct deformity and aid in the abolition of muscular spasm. It may be granted that there are occasions when this line of treatment should be modified, or, indeed, not employed; but, speaking generally, it will be found most effective, and should be continued at least as long as the induced spasm described above is demonstrable.

The value of the sign lies in the fact that without such a definite indication of activity ambulatory treatment may be too early permitted, with grave risk of relapse, further extension of the disease, greater disorganisation of the joint, and production of deformity. On the other hand, without means of demonstrating that spasm has ceased recumbency may be unduly or needlessly prolonged, to the detriment of the patient's health and happiness.

Emphasis should be laid on the fact that while failure to elicit the sign is a certain indication that there is no longer muscular spasm about the affected joint, that alone does not justify the assumption that the disease is finally arrested. Prolonged care in treatment is still called for. Efficient immobilisation should still be enforced and the joint protected from strain or injury, but with these precautions observed ambulatory treatment may, as a general rule, be with confidence permitted and extension on the affected joint discontinued.

Prognosis: Significance in Early Cases.

It may be added that if recumbency, immobilisation, and extension be enforced until the sign of activity described cannot be demonstrated, not only may a very favourable prognosis be in general given, but also a very useful range of movement in the attacked joint may be anticipated. Such prognosis naturally presupposes that the joint is effectively immobilised and guarded when ambulatory treatment is first permitted and the patient is given the benefit of that adequate after-care and skilled observation which so serious a condition as tuberculous disease of the hip-joint demands.

The sign also has diagnostic significance in early cases of tuberculous disease of the hip-joint, but it has not the peculiar value in these that may be attached to it later on. In cases of tuberculous disease of the hip-joint which are becoming quiescent it may be considered almost to stand alone as marking, with peculiar exactness, the point where spasm of the muscles and corresponding activity of the disease ceases, and its unique character on that account renders it of especial value.

In early hip disease it is but one of many signs of the onset of tubercle, but it affords confirmatory evidence of active inflammation about the hip-joint which possesses a value not to be despised, and which, in conjunction with other signs of tuberculous disease of the hip-joint, contributes additional evidence of importance in early diagnosis.

A ROUTINE TREATMENT FOR SEPTIC SORES AND NILE BOILS.

By H. WARREN CROWE, M.D. OXON.,
TEMPORARY CAPTAIN, R.A.M.C.

SEPTIC sores and Nile boils have been from time to time extremely common among the forces in Egypt. It appears that similar troubles affect the Salonika and Mesopotamia armies. When the lesions are severe either condition is incapacitating and may involve the withdrawal of many men from the fighting line. The routine of treatment which I now venture to advocate is certainly capable of being used in the field. If the same results can be obtained at the front as in a base hospital evacuations of sick due to these diseases should be almost eliminated.

I.—*Septic Sores.*

The name septic sores is now hallowed by use, and I adopt it in preference to tropical ulcer, veldt sore, barcoo rot, and I.C.T. (an army title signifying inflammation of connective tissue). I.C.T. is too comprehensive a name, veldt sore and barcoo rot are local titles, whilst tropical ulcer should, I think, only connote that condition associated with the Leishman-Donovan body. Of this I have had no experience. It is undoubtedly rare amongst the troops in Egypt and Palestine.

The most recent work done on the subject appeared in a paper entitled "Observations on the Pathology of Barcoo Rot (Veldt Sore?)."[1] Lieutenant-Colonel C. J. Martin, F.R.S., A.A.M.C., discusses the question in the light of his experience in the Sinai Peninsula during the summer of 1916. He gives an excellent résumé of the study of veldt sores, which he takes to be an identical condition. Colonel Martin considers the immediate cause to be an infection of the hair follicles with staphylococci of low virulence. He does not, however, exclude the possibility of some environmental factor which may dispose to the disease. He quotes Bishop Harman's conviction that "the restricted range in diet during operations on the veldt is an essential factor in bringing about the condition."

Colonel Martin's description of the sores is so clear that I venture to give it in full:—

> The patient may remember abrading the skin, but whether or not, the first sign is usually a bleb or blister containing thin, watery pus and surrounded by an area of slightly inflamed skin. The blister may be the size of a sixpence or even larger, but before it reaches this size it is usually broken. The denuded surface shows little tendency to heal, but slowly extends at its margins, at the same time deepening until there are no more epithelial structures left. The ulcer, however, remains shallow, and it is unusual for the fibrous layer of the skin to be destroyed unless it becomes infected with virulent staphylococci. The glands are not inflamed unless secondary infection occurs, and there are no constitutional symptoms.
>
> When healing has occurred areas of glossy skin more or less denuded of hairs and sweat glands are left. Cicatrisation does not occur unless the true skin is destroyed. Infection of fresh areas of skin in the neighbourhood is usual, so that the patient has several ulcers of different ages. The disease in its minor forms is extremely annoying, and, when the ulcers have become large, incapacitating.

Colonel Martin also makes this statement: "The pus from the early blisters before they were broken afforded only growths of staphylococci." Bishop Harman also found only staphylococci.

Other valuable, though I believe unpublished, work has been done by Captain Craig, R.A.M.C., on septic sores in the Sinai Peninsula, also in 1916. He found true diphtheria bacilli in some 25 per cent. of sores, and noticed diphtheritic sequelæ to follow in a certain number of cases. I should add that Colonel Martin also mentioned having isolated true diphtheria bacilli in one instance.

During the period covered by my own observations (at the base, at any rate) diphtheria bacilli were rare. I found diphtheria-like organisms in about 5 per cent. of all sores examined. The sores in which these occurred were distinguished from the usual ulcers by their depth and by a tough, blackened, dry membrane which covered them, and which I only succeeded in dislodging with the help of a digestive ferment. The membrane contained diphtheria-like organisms in large numbers. I regarded the condition as due to a secondary diphtheritic infection imposed on a primary streptococcal lesion, since, after removal of the membrane and cleaning up with alcohol, in more than half these membranous sores streptococci were isolated in pure culture (the remainder being sterile). At the time there was quite a considerable epidemic of mild diphtheria in progress.

Altogether I cultured 103 cases of septic sores. From the outset also I treated the patients with vaccines, either autogenous or stock, prepared from similar conditions. The indications derived from this treatment were of great assistance to me. For example, I noticed that although staphylococci could be cultured from almost any open sore, yet vaccines of this organism produced no apparent effect.

From the first unopened blister which I punctured a streptococcus grew in pure culture; it was delicate, and seemed to require serum or blood for its successful cultivation. From the pus of open sores streptococci could only occasionally be isolated owing to overgrowth by other organisms. I therefore adopted the technique of cleaning up a sore with absolute alcohol and planting out on Löffler's or other blood medium the serum which presently would ooze up from the bottom. This serum was sterile in about 30 per cent. of the sores examined, but as cases were taken successively and without selection a number of small healing sores were included, and these were the source of most of the negative cultures. Where fresh active sores were thus treated a negative was rare.

Of 98 non-membranous sores in 98 different people cultured by the technique just described 65 were positive and 33 were negative. The table shows the percentages of the different organisms in these positive cultures.

		Per cent.
Streptococci occurred in	59	= 90·8
,, in pure culture in	39	= 60·0
,, with staphylococci in ...	17	= 26·1
,, with diphtheroids in ...	3	= 4·6
Staphylococci in pure culture in	4	= 6·2
Diphtheroids alone in	0	= 0

A further point which became very clear during the work was that the more thoroughly an ulcer was cleaned up with alcohol the more certainly were streptococci found in pure culture. A certain number of sores which yielded a mixed growth of strepto- and staphylococci at the first culture showed streptococci only later on. These are classed as "streptococci with staphylococci" in the table.

Summarising the various findings, my own and those of others described above, the reader will notice that staphylococci alone are found by several observers, including Colonel Martin; diphtheria bacilli in a large proportion by another; and finally, in my own series, there can hardly be any doubt that streptococci were the active agent. If any further evidence is required to confirm this, I may add that inoculations of small doses of streptococcal vaccine, either autogenous or polyvalent stock (made from septic sores), produced a very marked focal reaction with an outpouring of serum, and that larger doses were followed by an outbreak of fresh blisters.

It seems probable from a consideration of all the evidence that we are dealing with a condition directly due to some cause associated with a hot dry climate or with a special dietary, and that in every case the lesion thus produced is infected with the prevailing microbes. It does not seem that there is sufficient evidence to point to any particular climatic agent or form of diet as the actual cause of septic sores.

II.—*Nile Boils.*

These are a totally different lesion from septic sores, though in certain stages somewhat resembling them. They are also quite plainly different from the usual boil seen in temperate climates. I have not been able to discover a publication describing the pathology, nor, unfortunately, have I had the opportunity of investigating the histology myself. But the naked-eye appearances alone are sufficiently unusual to warrant a distinctive title. The earliest appearance of the Nile boil is a tiny, almost pin-head, blister, and at this stage it is not unlike an early minute septic sore. Very soon, however, this small head becomes surrounded with a bright red areola about the size of a sixpence. Some virulent boils start with a larger areola, even up to the size of a five-shilling piece, and the whitish, blister-like head is of a corresponding size. If at this early stage, which is within 24 hours of the commencement, the head be lifted off, within will be seen a small slough about the size of an ordinary pin's head. After 48 hours the appearance is, as a rule, still the same, only larger. During this first period the boil is intensely tender to the touch, as, in fact, it is during its whole course. The second stage now begins by a general hardening and swelling of the surrounding tissues, which

[1] Brit. Med. Jour., June 9th, 1917, p. 761.

become a dusky purple. Gradually a hard, brawny lump forms, which may be any size, from a hazel nut to the half of a large orange. The central slough also steadily grows in size, and squeezing or opening with a knife only results in the expulsion of a little clear serum. At some point in this slow evolution, which may take three weeks or longer, the boil begins to break down, pus is formed, the slough or core is gradually extruded, and eventually a deep-seated ulcer is left, which slowly heals by granulating from the bottom. In the later stages the larger boils resemble an ordinary carbuncle. There is considerable destruction of tissue and a deeply pitted, purplish scar always results. Note here the difference from septic sores in which scarring is usually absent. The distinctive features, then, of the Nile boil are the initial slough, with its red areola, the extreme tenderness, and the complete absence of pus until the last stage.

Chalmers has examined three boils bacteriologically[2] and isolated an organism which belongs to the group of *Staph. pyogenes aureus*, that subdivision called by Dyar the *Micrococcus mollis*. He has used a vaccine in doses of 500 million on cases with, he asserts, good effect.

After culturing some 30 of these boils I have to submit that the *Staph. aureus* is not the cause of Nile boils, though it may possibly be responsible for the pus formation when that occurs. If this pus be cultured, *Staphylococcus aureus* will almost certainly grow. If, on the other hand, cultural experiments be made at the earlier periods before there is pus formation, then a *Staphylococcus aureus* may sometimes appear, but this, I suggest, is merely an accidental contamination. In every case but one I obtained an organism which at first I took to be a short streptococcus, but which I am now inclined to regard as a white staphylococcus allied to the *S. epidermidis albus* of the skin.

In order to isolate this organism successfully the skin surrounding the boil, the red areola, and the head should be carefully sterilised by swabbing with absolute alcohol. The head should then be lifted off in sterile fashion and a heated test-tube applied to the boil. In a short time the suction as the test-tube cools will induce a slight flow of clear serum. This may then be pipetted off into broth or planted out on a favourable medium such as serum, blood agar, or chocolate medium (I have not ascertained whether primary growth will take place on ordinary agar). Personally I always pipette the serum into Wright's pneumococcus broth, for the reason that after 24 hours the correct organism is easily recognisable by the absence of turbidity and the presence of coarse granules. The culture is also available as a vaccine if required.

Microscopically the organism is an irregular coccus almost always seen in closely apposed pairs lying in clumps and larger than a staphylococcus of the pyogenic type. It does not form chains. On subculture the growth soon becomes turbid. I also noted a curious fact—viz., that though on agar the growth is white, on serum yellow pigment is produced.

The most peculiar property of this white staphylococcus, at any rate from the practical point of view, is its extreme toxicity when used as a vaccine. Believing the organism to be a streptococcus the first dose which I administered was ridiculously small for a staphylococcal vaccine. The case was that of a man who had two small early boils (48 hours), one on each buttock, the first he had ever suffered from. I gave him 10 million. The next day he attended my sick parade, having had four fomentations in the night for the relief of well-nigh intolerable pain, and I found the local reaction had resulted in an inflammation involving nearly the whole of each buttock.

Later on, when I was attempting to immunise men by giving them larger doses, I found that anything over 30 million produced a very considerable swelling and stiffness at the site of inoculation.

III.—*Treatment.*

A. *Preliminary observations.*—I have already mentioned that small doses of vaccine had to be used in septic sores to avoid the production of a fresh crop. I found the same to be true in the case of Nile boils. After a considerable amount of experiment I reached the conclusion that the optimum dose for each vaccine averaged 500,000 germs, and, further, that these small doses should be given about every three days. Further, since both varieties of lesions were prone to occur in the same individual and even where septic sores alone were found, after cure, especially in the hot weather, they were often succeeded by boils, the best treatment seemed to be to give a combined vaccine containing many strains, both from septic sores and also from Nile boils, in doses of 500.000 streptococci and the same number of the boil staphylococcus. Inoculations were given twice weekly and only increased for prophylactic purposes after cure was complete. During the evolution of this routine method, and after it had crystallised, I had under my care something over six hundred cases. The results were very encouraging. The average stay of patients in hospital gives a rough indication of these. It was reduced from about one month to ten days. Further, medical officers who had had experience of sores and boils were well satisfied with the treatment. Notably, Major A. V. Tuke, M.C., R.A.M.C.(T.), surgical divisional officer of the hospital, who permits me to quote a written communication of his on the subject:—

> I have had much experience of septic sores in Gallipoli, Egypt, and Palestine, and I am greatly impressed with the results obtained under vaccine treatment as carried out in this hospital (27th General) under Lieutenant Crowe.

Major Tuke has given me very great assistance in the work, both by his sympathetic attitude and also by many practical suggestions for local treatment, and I am glad to take this opportunity of expressing my appreciation.

B. *Preparation of vaccine.*—The septic sore vaccine. A series of suitable cases showing freely discharging superficial sores should be chosen.

(1) A sore is cleaned up with alcohol.

(2) The serum which presently exudes is taken up in a sterile pipette and dropped into Wright's pneumococcus broth. (Peptone broth plus 6 acid, glucose 1 per cent., fresh human serum 2–5 per cent.)

(3) After 24 hours' incubation the broth is shaken and examined microscopically. It will be found to contain streptococci, practically in pure culture. They will number about 2500 million to the c.cm. Some strains require 48 hours to attain sufficient growth. Counting is unnecessary.

(4) Lysol to make ½ per cent. solution is now mixed with the culture. After thorough shaking the tube should be flamed right down to the surface of the fluid and then left upright in a stand.

(5) Twenty-four hours later the now sterile culture is poured into a stock bottle. For this purpose a sterilised medicine bottle plugged with cotton-wool will serve.

The boil vaccine.

A series of typical young boils in different patients are cleaned up with alcohol, the head lifted, and serum made to exude by means of a heated test-tube, as described before. The subsequent steps of the procedure are as for the septic sore vaccine. In a large majority of the cases 24 hours' incubation of the glucose serum broth will show a granular growth with but slight turbidity except on strenuous shaking.[3]

The growth of this organism may also be taken for all practical purposes as 2500 million per c.cm. (as a rule it is less), and a second stock bottle is gradually filled of boil vaccine.

We have now stock bottles of septic sore vaccine and of boil vaccine, both containing approximately 2500 million to the c.cm. These are now capped with rubber caps, paraffined, thoroughly shaken up, and tested for sterility. From the original stock bottles is made up a lower-strength stock containing 400 million of *each* vaccine to the c.cm. Using a 50 c.cm. vaccine bottle for this purpose, 20,000 million germs (400 by 50) of each kind of vaccine is introduced. This is contained in 8 c.cm. from the original stock bottles. In practice 50 c.cm. vaccine bottles, capped and filled with sterile carbolised saline, are made ready, 16 c.cm. is extracted and replaced by stock vaccine.

For use in treatment the following dilutions are needed: 2 million, 8 million, and 32 million to the 20 minims or c.cm., according to the syringe likely to be used. These figures denote the numbers of germs of *each* vaccine.

Using 50 c.cm. bottles, we arrive near enough to these figures by adding 0·25 c.cm. of the 400-million stock bottle to obtain the lowest dilution—1 c.cm. from the same bottle for the middle dilution and 0·65 c.cm. from each of the original

[2] Journal of Trop. Med. and Hyg., vol. xviii. (1915), p. 205.

[3] Provided the serum taken from the boil is clear—and a boil which discharges pus should not be used—little fear need be entertained that the wrong organism will grow. For purposes of identification, however, it may be taken that the true boil staphylococcus is being cultivated if (1) the germs appear as very closely attached diplococci growing in clumps; (2) the broth shows a granular growth with only slight turbidity; (3) colonies on neutral red egg medium (Dorset's medium, with 1 per cent. glucose and 1 in 10,000 neutral red added) pit the medium, are pink and opaque, and *do not turn orange after 72 hours' growth.*

stock bottles for the strong. The labelling of these bottles should be as distinctive as possible, as a dose given by mistake from the 32-million bottle may result in a very severe relapse.

C. *Details of routine treatment.*—Records should be kept of the characters of the lesion, whether superficial or deep sores or membranous (diphtheritic), and in the case of boils whether multiple or single, large or small. Also the length of the history and whether continuous or recurrent.

Vaccine is given in bi-weekly doses of 500,000—i.e., 0·25 c.cm., or 5 minims out of the bottle containing the weakest dilution until all lesions are cured, until no fresh ones appear, and until, in the case of sores, no old superficial scars start weeping afresh after an inoculation.

Vaccines in conjunction with certain surgical measures detailed below will cure the great majority of cases in a remarkably short space of time, but the small doses which are the best for cure have had no effect in preventing relapse. I have found, for instance, that even the omission of one dose is frequently followed by a fresh outbreak. It is therefore essential to continue the vaccine when cure is apparently complete, with increasing doses for prophylactic purposes. After-treatment then should consist in giving doses as follows: 1 million, 2 million, 4 million, still at the same intervals—i.e., bi-weekly, then at intervals of seven days: 8 million, 16 million, and 32 million.

From time to time a case crops up which does not react to the stock vaccine. For these an autogenous vaccine will usually be found to be successful. The routine of doses is the same.

D. *Surgical measures.*—The correct surgical treatment is of the utmost importance, especially in the case of boils. All boils must be incised in such a way as completely to divide the central slough at the earliest possible moment. I desire to lay very particular stress on this point, because in this country it is the custom to wait for a boil to "come to a head" before using the knife. In other words, to wait for pus formation. After the slough of a Nile boil has been completely divided it will not grow any larger, and in the ordinary way will then slowly liquefy and resolve, a process taking from a week to ten days. If, however, the half-million dose of vaccine is given at the same time as the boil is incised cure will be complete after 48 hours. This measure entirely prevents the development of large boils.

Septic sores have a tendency to become covered with a seeping scab. Care should be taken to prevent this by soaking and removal of dried serum. Large actively discharging sores need plain moist dressings, but small healing lesions may be painted with advantage with 1 in 1000 brilliant green in 50 per cent. alcohol and left exposed to the air. It should be remembered that sores over joints always heal with difficulty. These, if possible, should be kept at rest by splinting the limb. Occasionally septic sores become infected with virulent staphylococci, as Colonel Martin has noted, and large ulcers of considerable depth may result. For these it is advisable to give a preliminary dose or two of stock *Staph. aureus* vaccine and keep at absolute rest. 1 in 100 brilliant-green ointment on lint is a good dressing.

Fomentations should only be given for the relief of pain, and are practically never necessary except for deep or membranous septic sores. The only dressing required for incised boils is a piece of cotton-wool strapped across and changed twice a day.

Neglected boils sometimes lead to the formation of chronic sinuses. If these are opened up under an anæsthetic, thoroughly scraped, and then rubbed over with spirit and bipp, they can be stitched up and will heal by first intention.

Membranous sores are diphtheritic and Captain Craig recommends large doses of antitoxin. In addition it will be found that applications of trypsin will remove the membrane. After the ulcer is clear, packing with bipp for three days usually leads to a healthy granulating surface being formed.

Summary.

A vaccine prepared from a large number of strains of streptococci isolated from septic sores, combined with a similar series of a peculiar staphylococcus isolated from Nile boils, when given in frequent small doses, in conjunction with certain surgical measures of which the most important is the early incision of boils, is of great assistance in the cure of these diseases. Increasing the dose of vaccine on the scale described after cure is complete prevents relapse.

In conclusion, I would add that I had intended to make a full study of the organisms, but the exigencies of the times have hitherto prevented my finding the opportunity.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF EPIDEMIOLOGY AND STATE MEDICINE.

Outbreak of Typhoid Fever among Inoculated Soldiers.

A MEETING of this section was held on NOV. 8th, Lieutenant-Colonel E. W. GOODALL being in the chair, when a discussion took place on an Outbreak of Typhoid Fever among Inoculated Soldiers.

Captain FRED. M. MEADER, U.S.M.C., gave an account of the epidemiology of the outbreak. He said that on July 11th, 1918, there appeared at an American rest camp the Fourth Casual Company, J A.R.D., Camp ——. Soon after entrance to the camp several cases of fever were brought to the camp hospital. At the time many cases of influenza were present among the soldiers who were passing through this camp, so that no special significance was attributed to the symptoms. After a few days' observation the commanding officer, Captain Logan, suspected that the cases might be typhoid fever. At about the same time a few patients had been sent to a base hospital. Suspicion of typhoid fever was soon aroused, and blood cultures were ordered by Captain Hawn. The district sanitary officer inspected the cases and took specimens of blood from each of the new cases for a culture. *Bacillus typhosus* was isolated from 8 out of 10 cases two days later. During the next month *Bacillus typhosus* was isolated from the blood or fæces of 10 more cases. Altogether 38 soldiers developed typhoid fever at this camp. *Bacillus typhosus* was isolated from 18 of these cases. This organisation left a cantonment on June 15th, 1918, for Camp Merritt, New Jersey. While *en route*, on June 18th, the organisation stopped at Meridan, Mississippi, and was taken for a swim in a lake. The organisation arrived at Camp Merritt on June 21st and embarked on June 28th, and arrived at Liverpool July 10th. After disembarkation the organisation proceeded to ——. At Liverpool 3 cases were left at the Red Cross Hospital, and it is reported that 2 other cases were left at some station *en route*. At the American rest camp 40 soldiers were found ill and transferred to a base hospital, where a diagnosis of typhoid fever was made on 38 of them. From a study of the history of each case it was noted that the date of onset varied over a period of about a month. The first case was ill on leaving Camp Cody. The second developed on June 19th, the third on June 21st, the fourth on June 24th, three on June 26th, four on June 29th, five on July 6th; after which a case developed every day up to the time the organisation arrived at the American rest camp. The organisation left the American rest camp before the diagnosis of typhoid fever had been established, and it had since been learned that 57 other cases developed; this made a total of 95 cases of typhoid fever out of a company of 248 men. In seeking the sources of the infection of this outbreak we naturally turn to the patient who was first ill. With regard to the method of spread it was noted that a considerable group of cases developed during the latter part of the month of June and the early part of July. This suggested a common source of infection; there were two possibilities: 1. That these cases became infected in the train early in the journey. 2. That they became infected bathing in the water at Meridan, Mississippi, on June 18th. The water might easily have been infected by one or two cases of typhoid fever which were present in the organisation at the time. The remaining cases of typhoid fever undoubtedly received their infection by contact with the patients who were ill in the organisation. This could be easily done since the men were crowded together on the train or on shipboard. There were about 1800 men on board the steamer, this number being composed of Casual Companies 4, 10, 11, and 15 and Supply Company 112. Most of these organisations went on to France, and among the members of Casual Company 4, 57 other cases developed, as mentioned above. Infection was limited to No. 4 Casual Company, which suggested that the disease was spread during the swim in the lake at Meridan. All of the above-mentioned cases had been inoculated with either typhoid

vaccine and paratyphoid vaccine or triple typhoid vaccine, or both. Many of them had received several doses in excess of the required number. Also, the men were inoculated at widely different posts and at different times. One patient stated that he received but one dose; otherwise it would seem that the whole organisation was thoroughly immunised. Captain Meader thought that there were three possible explanations of the outbreak: 1. The men might have been unvaccinated or inefficiently vaccinated, but they gave a history of having been vaccinated in different camps at different times, and antibodies were present in their sera. 2. The infection might be due to a new race of organism, but bacteriological tests proved the organism to be that of typhoid; there might, however, be a slight difference in the strain. 3. There might have been an overwhelming dose; this was the most reasonable explanation, as the swimming party included a man with diarrhœa.

Captain CLINTON B HAWN, U.S.M.C., gave an account of the clinical aspects of the outbreak, which included an account of each of the 40 cases mentioned by Captain Meader. Of these 40 cases, 38 were cases of typhoid In hospital segregation was secured by screening. No case developed as a result of infection whilst in hospital. In dieting the patients they were much handicapped owing to the difficulty in preparing soft food. I. The exact date of *onset* was difficult to decide. Diarrhœa occurred in 58 per cent., constipation in 21 per cent., chill in 10 per cent., and nosebleed in 2·6 per cent. II. Clinical pathology: 1. Low white count was present in all uncomplicated cases. 2. Blood culture was positive in 33 per cent. 3. Stool culture was positive in 25 per cent. 4. The atropine test was positive in 79 per cent. III. Clinical course of disease: 1. The average duration of fever was 35 days: (*a*) Severe high grade typhoid, 70 per cent. 2. Complications: (*a*) Lobar pneumonia occurred in 1 case; (*b*) terminal pneumonia in 1 case; (*c*) broncho-pneumonia in 2 cases; (*d*) hæmorrhage in 3 cases; (*e*) perforation in 1 case; (*f*) phlebitis in 1 case. IV. The mortality was 13 15 per cent.

Captain J. G. HOPKINS, U.S.M.C., said that of the 40 patients in this series admitted to Hursley Hospital as typhoid suspects, the laboratory findings were positive in 25. The results are summarised in the following table:—

	Cases.
B. typhosus isolated from blood and from stool	4
,, ,, ,, ,, blood only	3
,, ,, ,, ,, stool only	5
Typical typhoid lesions at autopsy in cases from which the bacillus was not isolated during life... ... ... (*B. typhosus* isolated post-mortem from 2 of the above.)	3
Typical shift in typhoid agglutinins; blood and stool cultures negative	6

In the remaining 14 cases all laboratory tests were negative, although 13 were clinically cases of typhoid. Of 10 blood cultures taken within a few hours of admission to the hospital 8 were positive irrespective of the stages of the disease. Of 29 cultures taken after patients had been in bed 24 hours only 4 were positive. He thought that this suggested that the physical strain the men had undergone might have caused a persistence of their bacteriæmia. Five fatal cases all showed typical typhoid ulceration of the lower ileum; 1 case showed evidence of recrudescence; extraordinary enlargement of the spleen was found in 2 cases. The complications noted at autopsy were as follows: intestinal hæmorrhage, 1; perforation, 1; thrombosis, 2; pneumonia (pneumococcus type, 1), 1; intramuscular hæmatoma, 1. Titration of agglutinins for typhoid and paratyphoid A and B showed a normal amount of agglutinin for recently vaccinated men. Vaccination records showed that the men were vaccinated at several different camps and at different times, so the possibility that a faulty specimen of vaccine was employed might be excluded. The typhoid bacilli isolated were apparently typical. The laboratory findings offered no explanation of the infection of these men.

Surgeon-General Sir W. B. LEISHMAN said that what struck him most was the remarkable severity of the disease, the number of men attacked, that the infection did not extend to other units, and that though the men were inoculated they still got the fever. The disease as seen in this outbreak was similar to the old typhoid which was known in India, and not the type met with in our army among inoculated men. A case was found occasionally as severe as the old type, but nothing comparable to this had been met with in the B.E.F., nor among the forces in other areas. He had seen a group of men attacked with typhoid of the old type, but on investigation it was found that they were nearly all unvaccinated, the exceptions having been vaccinated two or more years previously. A severe type often occurred in men who had not been lately inoculated. He thought that this was likely to be a case of repeated and massive infection rather than a failure of vaccination in protecting those men. Among them the conditions were such as to cause frequent infection, and a big dose was more likely to override the protection given by inoculation. An abnormal strain was conceivable, but there was no evidence to show the presence of a different strain from the three known strains, and agglutinins had been found in the blood.

Dr. F. FOORD CAIGER suggested that the interval between inoculation and infection was too long for protection to be afforded. He remarked upon the number of cases of severe diarrhœa and said that in severe typhoid diarrhœa was the rule and constipation the exception. Distension of the abdomen should be prevented by proper dieting and the administration of antiseptics.

Lieutenant-Colonel HARVEY said that tests made on the blood of the three men left at Liverpool did not prove the presence of a separate strain. He had not made any tests with regard to virulence.

Sir KENNETH GOADBY said that immunity was only relative and might be overcome in two ways: (1) by successive small doses at short intervals, and (2) by a massive dose. In this case both occurred. The men in the other units would have occasional doses, but those in the same company frequent small doses.

Colonel WILLIAM HUNTER gave an account of an outbreak of typhoid among uninoculated men in Gallipoli, and described the effect of inoculation in decreasing the number of cases. He gave comparative statistics showing the extremely low incidence of the disease in Egypt at the present time. He thought that there must be something wrong with the vaccination of that particular company, as the outbreak was limited to that company only.

Dr. G. S. BUCHANAN also spoke.

Captain MEADER, in reply, said that the men came from different States and were therefore vaccinated by different medical officers and from different batches of vaccines, and therefore he could not think the method of vaccination or the particular vaccine employed could be in fault in every case.

SECTION OF OPHTHALMOLOGY.

Changes in the Cornea which Follow Attacks of Various Forms of Inflammation.

AN ordinary meeting of this section was held on Nov. 6th under the presidency of Mr. W. T. HOLMES SPICER.

The PRESIDENT first thanked the section warmly for having elected him to its post of honour, and then proceeded to give an address, aided by numerous sketches shown by the epidiascope, on "Changes in the Cornea which Follow Attacks of Various Forms of Inflammation." He said this subject had received but small attention in the literature. After ophthalmia neonatorum, sometimes very little was to be seen but the existence of vascular channels, yet the stagnation of the lymph circulation might bring about slowly advancing changes after all the inflammatory appearances had long since subsided. The presence of clear lines in cases of old corneal ulcers had been described by but few observers, although they had been long known and had been seen before the introduction of the loop. Nettleship described the linear paths of clear corneal tissue in large diffuse lipomata, the latter having probably arisen after small spots in infancy; while Fuchs discussed the various linear formations existing in the cornea, suggesting that the lines were due to changes in the lymph system and nebulous area. The best description extant of these lines was that by Sydney Stephenson. In one of his cases the lines traversed a nebula with opacity, and there had been repeated attacks of corneal inflammation early in life. Story stated he had seen lines of this character in interstitial keratitis, and he thought they were due to a clearing of vessels. The picture presented to the observer varied according to the depth of the vessels concerned. Besides the surface invasion of trunk vessels, the terminal capillary loops of the limbus were seen involved, these vessels not arising from any main trunk. This was common in marginal

inflammations, such as trachoma and acute interstitial keratitis, in which vessels invaded the cornea at all depths. It was quite uncommon for vessels to disappear and leave no trace; even though empty of blood they could be seen as silky threads on the surface or as clear lines beneath the surface. The vessels in one layer of the cornea did not interfuse with those in another layer. The first necessity in the production of these conditions was a destruction of tissue. The contraction which followed that either interfered with nutrition or interrupted the flow of lymph, leading to stagnation and the deposit of salts. Arcus senilis was more likely to occur in eyes which have been the subjects of corneal ulceration. The President then dealt in detail with the various forms met with.

On the motion of Mr. E. TREACHER COLLINS, seconded by Mr. W. LANG, the meeting accorded to the President a cordial vote of thanks for his address.

LONDON ASSOCIATION OF MEDICAL WOMEN.—A meeting was held at the House of the Medical Society of London on Nov. 5th, Lady Barrett, the President, being in the chair. The President introduced a discussion on "The Retention of 40 D and Allied Subjects," and read an analysis of the results of the Subcommittee of the Federation of Medical Women which have been considering the subject.—Dr. Louisa Aldrich-Blake, Dr. Marian Thornett-Johnson, Dr. Helen Chambers, Dr. Josephine Fairfield, Dr. Mary Roberts, Dr. Morna Rawlins, and others took part in the discussion, which was adjourned to a date to be fixed later.

Reviews and Notices of Books.

The Statics of the Female Pelvic Viscera. By R. H. PARAMORE, M.D. Lond., F.R.C.S. Eng.; Major, R.A.M.C. (temporary). With 26 illustrations, including 23 plates. London: H. K. Lewis and Co. 1918. Pp. xviii. + 383. 18*s.* net.

IN this book Mr. Paramore further elaborates his well-known views upon the mobility of abdominal organs, and those gynæcologists who still regard the question of uterine position, support, and misplacement as centering around the function and disease of the uterine ligaments, and who look upon the "parametric sling" as an all-important factor in uterine prolapse, will find it desirable to reconsider their position, and to bring, if they can, fresh argument and proof to support their hypothesis. Mr. Paramore stands as the champion of the pelvic floor musculature. He cannot concede these structures as vestigeal tail muscles of the lower vertebrates, of interest only from a morphological standpoint, and functioning feebly by virtue of the fascial coverings. For him they are muscles of high development consequent upon the assumption of the erect posture, and they form an almost complete pelvic diaphragm, in complete nervous sympathy with the general musculature of the abdominal parietes. He pleads with cogency for the conception of the "visceral mass," and maintains that the position of the uterus cannot be considered apart from that of the pelvic viscera in general. He sees the position of these viscera as completely dependent upon the factor of a definite and measurable intra-abdominal pressure acting upon an intact pelvic floor musculature, cunningly arranged to form a sphincter for the pelvic outlet. He shows how the abdominal contents, by virtue of their incompressibility, respond to the ever present downward thrust of the diaphragm above, and bring about the regression of the pelvic floor, and finally establish in equilibrium in the adult pelvis organs which in the fœtus and adolescent are abdominal.

Evidence from phylogeny and ontogeny, from pathological and clinical investigation is in turn called. The arguments seem incontrovertible and it is difficult to believe that Mr. Paramore has not made good his case. The book is one essential to gynæcologists, and which may with advantage be read by others. If Mr. Paramore's contentions are found to be correct they will afford some explanation for the mysteries of visceroptosis, and will help to an understanding of the cause of failure of many of the "organ fixation" types of operation. Many excellent drawings conduce to the apprehension of the arguments and the whole book is presented in a pleasing manner. We congratulate the author upon it and await with interest for the second volume which he promises.

Local and Regional Anæsthesia. By CARROLL W. ALLEN, M.D. Second edition, reset. London and Philadelphia: W. B. Saunders Company. 1918. Pp. 674. 28*s.*

SINCE the appearance of the first edition of this book three years ago the scope of local analgesia has widened considerably. Dr. Allen's work remains, however, one of the most complete accounts in the English language both of the technique and of the physiological explanations of analgesia by local injection. The chapter on Nerves and their Sensations, especially Pain, may be read with profit and interest even by those not immediately concerned with the use of local anæsthetics. The author regards the application of this method to the operations for removal of the prostate as one of the most important recent developments of local anæsthesia, and there can be no doubt that many of the subjects of prostatectomy are just those for whom general anæsthesia, however skilfully conducted, affords more than the usual risk. The pages dealing with this operation are worthy of careful study by all surgeons; the author seems in general to prefer operation in two stages; local analgesia makes a heavy call upon the time, patience, and skill of the surgeon, but the results here recorded justify such an outlay. The best medium for anæsthetic solutions is found by Dr. Allen to be a 0·4 per cent. solution of sodium chloride, and he regards novocaine as the anæsthetic which hitherto most nearly meets all the requirements demanded of a perfect local agent. He writes that after an experience embracing the entire field of surgery he has failed to note a single case in which this agent has produced any unpleasant local or constitutional action.

The pleasure of perusing this valuable book is marred by a certain carelessness of diction in which nouns fail to agree in number with the verbs dependent on them, and while it is priggish to suggest that infinitives should never be split, the proper order of words could have frequently been preserved without loss of clearness. None the less, text and illustration are highly commendable work.

Diseases of the Skin. By MILTON H. HARTZELL, Professor of Dermatology at the University of Pennsylvania. With 51 coloured plates and 242 illustrations. London and Philadelphia: Lippincott Company. Pp. 753. 30*s.* net.

IN this country text-books dealing with dermatology are few, and the majority of them are of considerably smaller size than many which appear in America. Professor Hartzell in this regard follows the example of his countrymen, but there is not a page that could be spared. The matter is concentrated and accurate; there is throughout evidence of that thorough knowledge which enables an author to achieve compression without lack of clearness. Treatment is carefully considered, and practical as to detail. The illustrations are well selected and life-like, up to the modern high standard. The consideration of X ray treatment in dermatology is more detailed than we remember to have seen in other American text-books, and the intimate acquaintance with European literature is another high recommendation to a volume appearing in Britain.

Professor Hartzell states in his preface that his experience in general medicine has enabled him to survey the subject of dermatology from the standpoint of the general practitioner as well as that of the specialist. Reference to the paragraphs on etiology and treatment throughout the book shows that this claim is well founded. This is certainly a much needed method of approaching certain diseases, such as eczema, which are dependent upon and vary with the general health. Professor Hartzell considers carefully in this respect the subject of protein hypersensitiveness. Every dermatologist has met with instances of eczema, alternating with asthma, which yield only to a careful dietetic régime. Recently treatment of asthma by injections of foreign proteins has yielded promise of success, and it is therefore of interest to learn that cutaneous tests with various foodstuffs have been carried out in order to ascertain whether the eczematous patient exhibits anaphylactic reaction to selected substances. Psoriasis is another common malady affected by the general health, but this author has found no royal road to its permanent cure

The volume should be a favourite with the advanced student because of the practical nature of its teaching.

Treatise on Applied Analytical Chemistry. By Professor VITTORIO VILLAVECCHIA. Translated by THOMAS H. POPE, B.Sc., A.C.G.I., F.I.C. London: J. and A. Churchill. 1918. Vol. I. Pp. 475. 21*s.* net. Vol. II. Pp. 536. 25*s.* net.

Professor Vittorio Villavecchia's two volumes cover a wide field; the methods and standards described bear witness to his experience in every branch of analytical practice, derived, no doubt, from his directorship of the chemical laboratories of the Italian Customs. The first volume deals with the analysis of potable waters, chemical products, fertilisers, cement materials, metals and alloys, fuels, tar and its derivatives, mineral oils and fatty substances, and the industrial products derived therefrom. The second volume includes chapters on the analysis of flesh foods, milk products, flour and starches, sugars and saccharine products, beer, wine, spirits and liqueurs, essential oils, turpentine, varnishes, rubber, tanning materials, leather, colouring matters, and textile fibres and fabrics. The general plan employed in the presentation of the many analytical methods involved will be much appreciated by the analyst. First a brief statement is given of the different cases and the problems which arise, as well as of the investigations and determinations to be made to solve them. Then follows a detailed description of the methods to be carried out. Then, most valuable of all, the criteria and standards are given by the aid of which the industrial, commercial, or hygienic value of the product may be deduced from the analytical data obtained. Finally, tables are given containing examples of the analytical results relating to the ordinary commercial qualities of the product. All this is excellent, particularly when we find that care has been taken to select those up-to-date methods which have been shown to be trustworthy and convenient. The book is a standard work of reference on the whole subject, and an excellent guide on analytical detail.

Reports and Analytical Records
FROM
THE LANCET LABORATORY.

(1) AMBRINE CANDLES; (2) MORUBILINE; (3) NÉVROS THÉNINE (FREYSSINGE); AND (4) QUINÉINE.

(ANGLO-FRENCH DRUG CO., LTD., GAMAGE BUILDING, HOLBORN, LONDON, E.C. 1.)

(1) THE ambrine candle provides a simple and safe method of applying melted wax to the skin in the treatment of burns, wounds, and abrasions generally. It dispenses with the use of an outfit of accessories hitherto employed, including sterilising apparatus, though the skilled dresser would prefer to continue the more elaborate method when the surface to be treated is extensive. In the ambrine candle, when the wick is lighted, the melted wax is sufficiently fluid to pour on a burn or wound, and yet is not so hot as to cause suffering, and a candle can be used, with common precautions, in the household and workshop readily and conveniently. We received two specimens: (*a*) a plain single stick, and (*b*) a tricandle (three candles waxed together lengthwise, forming three circles in a triangle).

(2) Morubiline is a dark brown syrupy fluid which is described as the extract of the fresh liver of the cod, to which has been added certain preparations containing phosphorus, iodine, sulpho-guaiacolate of potassium, and methyl arsenate of sodium. We confirmed the presence of these constituents and also found that an ethereal extract gave a purple colouration with sulphuric acid and glucose—the Pettenkofer reaction for biliary acids. In view of recent researches on the part played by accessory factors in animal fats, the theory has been revived that the value of cod liver oil in nutrition may be connected with the presence of such substances.

(3) "Névrosthénine" is a concentrated solution of the glycerophosphates of magnesium, sodium, and potassium, the inclusion of common calcium salt being omitted on the ground that it favours sclerosis.

(4) Quinéine is described as an integral extract of the active principles of cinchona bark, the inert products being excluded. The therapeutic indications are the same as those of quinine, but a claim is made for special efficiency ascribed to the improved method of preparation adopted.

EVATMINE.

(BRITISH ORGANOTHERAPY CO., LTD., 22, GOLDEN-SQUARE, REGENT-STREET, LONDON, W.1.)

This combination in the treatment of asthma is the outcome of clinical experience in France, and the formula is as follows: Pituitary extract (posterior lobe), ⅛ gr.; adrenin solution (1:1000), 8 minims; physiological salt solution, 8 minims. The preparation is contained in sterilised ampoules of 1 c.cm., with the above quantities of organotherapeutic constituents. The administration of adrenal extract has long been known to give relief in the paroxysms of asthma, but some interesting evidence is quoted that in combining this hæmostatic principle with pituitary extract the results are more satisfactory than when adrenin alone is used, as not only is the paroxysm rapidly cut short, but the intervals of attack are markedly increased when pituitary extract is simultaneously given. The two are combined in "evatmine."

SOTOL.

(WESTERN DENTAL MANUFACTURING CO. (1914), LTD., 73, 75, AND 79, QUEEN'S-ROAD, BRISTOL.)

Sotol tablets are not inaptly described as "mouth, nose, and throat baths," for in water they produce a pleasant, briskly effervescing solution containing well-known antiseptics suitable for cleansing the mucosa indicated. The antiseptics consist of menthol, thymol, and certain aromatic oils with an alkaline basis, which renders them agreeable to use and mildly detergent. The effervescence serves to circulate the antiseptics uniformly through the fluid, whilst giving it a pleasant, somewhat piquant taste. There is a feeling that the mouth and nasal passages are clean after the use of "sotol" solution and a healthy condition established. The introduction of an effervescing wash for the purpose is, so far as we know, novel.

FERMENTOSE.

(A. BREZET AND CO., 145, WOOL EXCHANGE, LONDON, E.C.2.)

In French clinics "la fermentose" has been employed in diseases arising out of disorders of nutrition, and notably neurasthenia. Its action is said to be that of a constructive metabolic agent restoring healthy functional activity in the gastro-intestinal tract. Its pharmacology is based on the presence of digestive ferments and an oxydase in the form of a metallic catalyst or activator. Fermentose occurs as a pale brownish powder, which is enclosed in cachets for administration. Two of these are prescribed daily, one with the mid-day and the other with the evening meal. We confirmed its hydrolytic activity *in vitro* and found a fairly large proportion of alkaline bi-carbonate present. We found also on suitable treatment the presence of metal, but, of course, in small quantity. The employment of a metallic "ferment" with well-known enzymes in disorders of metabolism is of interest, and suggests further clinical trials being made.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

SUBSCRIPTIONS TO THE SECOND APPEAL.

THE following subscriptions have been received up to Monday last, Nov. 11th:—

	£	*s.*	*d.*
Mr. W. H. Quarrell ...	1	0	0
Mr. E. Spencer Evans (monthly)	0	10	0
North of England Branch B.M.A (per Dr. J. Don, Hon. Sec.)—			
Dr. H. P. Bennett ...	1	1	0
Dr. C. R. Sutherland	1	1	0
Dr. A. Bruce Low ...	1	1	0
Dr. D. Galloway... ...	1	1	0
Dr. A. MacKay	1	1	0
Dr. James Hamilton	1	1	0
Dr. S. J. Brookfield Fox	2	2	0
Dr. Alex. Brown... ...	1	1	0
Dr. James Hern	1	1	0
Dr. J. Lawrence... ...	1	1	0
Dr. T. M. Kimpster ...	2	2	0
Hampshire Pharmacists Association (per Mr. C. H. Baker)	50	0	0
Dr. H. F. Staunton ...	1	1	0
The Grocers' Company	50	0	0

Subscriptions to the Fund should be sent to the treasurer of the Fund, Dr. H. A. Des Vœux, at 14, Buckingham Gate, London, S.W. 1, and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

THE LANCET.

LONDON: SATURDAY, NOVEMBER 16, 1918.

Peace.

THE cessation of hostilities has let loose a flood of feeling which has long been unnaturally restrained. The traditional procession in London on Saturday to initiate the new Lord Mayor in office was a striking military ceremony carried through with dignity and order. The same streets re-echoed on Monday to the unrestrained cries of a nation free once more to rejoice, and if the celebrations of peace in the capital seem to have been particularly flamboyant this was probably due to the presence in London of such large numbers of American and Colonial troops. In his Guildhall speech the Prime Minister, with instinctive response to the emotions of the nation, characterised the occasion as not an hour for speeches but for thankfulness—thankfulness for the end of a struggle which is going to lift humanity to a higher plane of existence for future ages. He appealed to his hearers, as they had by their unity achieved victory in war, so they should unite in peace to lift up their country by common effort to a position such as it never yet held in its history. Here medicine will see a particular appeal to herself. Medicine has achieved undreamed-of things by unity and organisation during the last four years. The chapter of the Four Years' War, which is now closed, may well be the beginning of a new era of physical health.

The Ministry of Health Bill.

ON Thursday evening last week Dr. ADDISON, the Minister of Reconstruction, introduced in the House of Commons the Ministry of Health Bill. Many of our readers may not have been able by this time to see the text of the measure, but they will have read such a large number of abstracts of it and commentaries upon it that we may assume their familiarity with its general design, as read for the first time. They are probably satisfied with much that it is proposed to do, but it is none the less necessary that the extensive scope and possibilities of the Bill should be closely realised, although its future is seriously compromised. The Bill will not be proceeded with this session, but whether this Bill or some other be in question, a Ministry of Health can only discharge its functions properly towards the public if it conducts its affairs with the coöperation of enlightened medicine. The Bill combines under one State Department all the existing responsibilities of the Local Government Board as far as health is concerned, and all the functions of the National Insurance Commissions for England and Wales. There will also be included the duties of the Board of Education in respect of the health of expectant and nursing mothers and children under five years. The Bill proposes to bring into the same Department the duties of the Home Office in regard to the protection of infant life under the Children Act, 1908, and those of the Privy Council, as administered through the Central Midwives Board, in regard to the midwifery practice of the country. That is the combining scheme of the Bill in respect of existing activities, but the Bill also proposes to give the new Ministry power to bring in other considerable health duties, and all these can be directed under intelligent guidance towards improvement in national health and its steady maintenance upon the higher planes. Thus medical inspection of school children and young persons, which now appertains to the Board of Education, and the duties of the Home Office in regard to lunacy and mental deficiency, if and when possible, may be included in the work of the new Department, while the Ministry of Pensions will also surrender to it the care of the sick soldier. When each additional burden can be best borne we may expect to see the process of solidification go on. A large programme, but one whose object is common; in which, therefore, common wisdom at the centre can well be infused into the different procedures at the periphery. Consultative Councils will be instituted to advise the Ministry in the proper directions, and the functions of these bodies have yet to be announced.

Such in brief are the chief provisions of the Bill instituting the Ministry of Health, and in introducing it Dr. ADDISON claimed that the measure was the outcome of general agreement, save in details, the agreement having been arrived at after consultations with many local authorities, medical men, and representatives of the Approved Societies under the National Insurance Act. We may be certain that the consolidation of existing State energies was viewed with approval by all who were asked, as it will be by others. The step is one which has been demanded in our columns and in those of the *British Medical Journal* for a long time, since those whose business it is to follow public administration in relation to medical affairs have known that the overlapping under the existing conditions was a perpetual impediment to progress. None the less, the Board of Education could not resign without real regret its functions of medical inspection and treatment of school children, and we have every reason to think that no such step will yet be taken. Certain difficulties which lie ahead can be focussed around questions of Poor-law. The present position of Poor-law administration does not lend itself to an easy transfer of responsibilities to any new central authority. The Boards of Guardians, the responsible authorities under the Poor-law, owe allegiance to the Local Government Board in other directions besides those which lead directly towards the maintenance and progress of health, though in all these directions the health of the people may be really concerned. Still, its medical duties form a very large part of the Poor-law. A recent Committee, presided over by Sir DONALD MCLEAN, Deputy Chairman of Ways and Means, in considering the transfer of the functions of the Poor-law authorities in England

and Wales, recommended that the services relating to the care and treatment of the sick and infirm should no longer be administered as part of the Poor-law but should all be made a part of the general health service of the country. The Government was stated by Dr. ADDISON—and the point is one of enormous importance—to regard the carrying out of this recommendation as a matter of urgency, and effect will be given to it by the inclusion of Poor-law medical administration in the work of the new Ministry as soon as the general policy for the transfer of the remaining functions of the Poor-law authorities to other hands has been settled, but some time must elapse before this can be definitely accomplished. The whole problem here presents considerable difficulties, but the Bill need not be delayed in other respects until what is commonly called "the break-up of the Poor-law" is accomplished. With regard to Scotland, the Bill brings together in practically the same way as in England the different State activities of medicine in that country, and institutes a Board of Health for the country which will be under the direction of the Secretary for Scotland. The position of Ireland for the present will be that the National Insurance will remain under the same direction as the Local Government Board of Ireland. The resolution into national components of insurance administration places the Medical Research Committee without the scope of the Bill, and with magnificent prospects before it.

The measure is an administrative one, and its main results will emerge not from the fusion of overlapping energies, and, at first at any rate, not from the development of constructive work made possible where system reigns in place of disorder. The results which will be appreciated practically will follow upon the part played by the Consultative Councils. If the functions of these Councils are well defined, if their advice is accepted as being in great measure authoritative—which means if their constitution is scrupulously considered—and if the public is kept duly informed of the reasons which determine State action on medical grounds, there resides in these Councils a power for good of incommensurable strength. The people want to be healthy. It is not apathy which makes sections of our population blind to their insanitary plight, or which keeps localities satisfied when their death-rates and infantile mortality are scandalous. This calm does not come from apathy—behind the supineness is ignorance. It is usual to say here that the housing of the poor and the industrial wages being what they are, salvation cannot be obtained by sanitary administration or institutional or domestic medicine. Granted to a certain point; but if the people knew what sanitary and medical science could do for them, a popular war would be waged against dirt and disease as successful as that which a popular war has waged against German militarism. And the end would be similar. The Ministry of Health Bill should constitute a great alliance between authorities for the putting down of insanitation and erecting the standard of personal hygiene; the authorities must secure the best advisers, when a well-instructed people will see that the counsels of these advisers are followed.

The Sexual Complement.

IN certain insects, such as *Bombyx mori*, parthenogenesis, or the complete evolution of the adult form from an unfertilised ovum, is known occasionally to occur; and this is a phenomenon probably capable of some biochemical explanation not yet understood. Among some of the lower invertebrates, such as *Ciona intestinalis* and *distomum*, the individual is all-sufficient unto itself in regard to the reproductive functions: each is male and female, not only structurally but also functionally. In Nudibranchs and Vermes it is usual to find only structural hermaphroditism, as it is called—that is to say, each creature has functional male and female gonads, but cannot fertilise itself. From this stage of evolution we find an increasing divergence in the sexes; but a divergence only, for the separation is never complete; even in the human subject there are structural, and probably functional, attributes of the opposite sex. In the lower vertebrates, such as the fishes and some amphibians, the ova are expelled by the females from their oviducts to the exterior, and are fertilised by the spermatozoa which the male pours over them. In certain of the amphibians, such as *Salamandra maculosa*, we see the first attempt at copulation with the entry of the spermatozoa into the female channels and the fertilisation of the ova within the oviducts—a constant physiological performance in all the higher animals. The phylogenetic importance of copulation and viviparity, as seen in the mammals above the monotremes which are oviparous, has been the subject both of serious study and of speculation. Many interesting differences in the manner in which the sexual act is accomplished, and in the immediate results thereof, are to be noted. It is impossible here to enter into all the details, each of which is of some morphological or physiological importance, but attention may be directed to two phenomena which have, perhaps, some special bearing on the subject under discussion. First, in rabbits, and probably in other rodents, copulation mechanically causes dehiscence of the ripe Graafian follicles in the ovaries; second, the inseparability of the bitch from the dog for some minutes after the semen has been ejaculated allows time for the spermatozoa to enter the uterus. Viviparity, in all the stages of completeness of placental fusion and chemical interchange between the mother and fœtus, can be traced from the marsupials to Man. It is almost certain that the evolution of the processes of reproduction has been far more concerned with the requirements of the offspring than with the welfare of the forbears: the parents, as such, are by their individual lives serving posterity, and to such an extent does this obtain in some of the lower creatures that death closely follows reproductive consummation. There can be little doubt, however, that in the later phases of evolution Nature offers many compensations and rewards to those who fulfil the reproductive destiny that is theirs.

In an article in THE LANCET of Nov. 9th Sir ARBUTHNOT LANE discusses the sexual and reproductive functions from the point of view of the health of the progenitor, rather than of the claims of posterity. Yet it is obvious, of course, that in a perfect scheme of sexual opportunity the generations to come need not suffer; indeed, with sexual prohibitions as well as sexual facilities considerable benefit might accrue. Sir ARBUTHNOT LANE, however, is chiefly concerned with the health of the women of our

civilisation. He draws attention to his own valuable work on the secondary structural characteristics of Woman, and he refers to well-known facts concerning the thyroid gland and its relation to the genital functions in the female. Other evidence, too, concerning the correlation of most, if not of all, of the internal secretions in their influence on the sexual characteristics and functions might well be adduced; but in the present day it is not necessary to labour the question of sex-differences—physical, physiological, and psychological—for they may safely be accepted. Sir ARBUTHNOT LANE raises interesting physiological considerations in regard to the sexual relations between Man and Woman. His statements indicate that intercourse and gestation are beneficial to Woman. This is certainly true, though the measure of the truth is probably proportionate to the exact differentiation of the individual into male and female. All medical men know how different in health and outlook may be the unloved woman from the happy wife and mother; yet many can recall instances in which celibacy has left *apparently* unaffected both the physiology and psychology. Yet most normal, healthy women become more womanly, more composed and happy, and their vital organs more vigorous as the result of gestation and lactation. But this effect will take place in proportion to the distinct sexual divergence already mentioned, which is present in the individual.

But apart from conception and its results, is there any evidence to show that sexual intercourse is beneficial to Woman? Sir ARBUTHNOT LANE says that there is, and we are inclined to agree with him, but not on the ground stated—namely, that the prostatic secretion is absorbed by the female and is "far-reaching and active in its results." With regard to the male, the prostate is said to be an organ of internal secretion that acts as a "powerful stimulant." With this statement, too, we find it difficult to agree. The glands in the prostate are developed from the epithelium of the urogenital sinus in close relationship with the urethra. In the female the homologue of the prostatic glands is to be found in the para-urethral glands. Castration produces atrophy in the prostate, but recent observations—experimental and clinical—indicate that prostatectomy does not lead to retrogressive changes in the testes, as originally stated by SERRALACH and PARÈS. Further, it is unlikely on phylogenetic grounds that the prostate is an organ of internal secretion, for even in the lowest mammals—a late stage of evolution—there is no prostate, nor are there vesiculæ seminales; indeed, until the urethral canal, through which both urine and semen are voided, is formed, this gland is not developed. It is probable that the prostate subserves only the functions and requirements of the spermatozoa—that is to say, the external secretion keeps active the male sex-cells, and by the production of a ferment known as "vesiculase" causes temporary coagulation of the fluid from the vesiculæ seminales after ejaculation, a condition that prevents the easy escape of the semen from the vagina. The absorbent properties of the vagina have not been sufficiently studied, but in view of its structure these cannot be great. The benefits, then, that a woman derives from sexual intercourse, apart from the advantages of conception, are mechanical, sensory, and psychological, and these, it is true, may greatly affect her normality and well-being. Hence the importance of what we may call the "sexual complement," which, as Sir ARBUTHNOT LANE indicates, is frequently not available in the present state of civilisation.

Annotations.

"Ne quid nimis."

THE MENTALITY OF THE WAR PRISONER.

PRISONERS' camps in all parts of Europe are being broken up, and the early return of our own prisoners of war and of civilian internés from enemy countries is expected. Much has been written, but little is definitely known, about their mental well-being, and we welcome a little pamphlet[1] of 50 pages by Dr. A. L. Vischer, of Basle, devoted to the study of the psychology of prisoners of war, and especially to what was first called the "barbed-wire disease" in an agreement for exchange made between this country and Germany in July, 1917. Dr. Vischer is a surgeon in Basle, and does not claim for himself special experience in mental affections, but he has himself spent much time in various prisoners' camps in different countries (he was attached to the Swiss Consulate in London), has conversed with hundreds of prisoners, and learned to know many of them. His experience is therefore first-hand, and he claims that it is important owing to the fact that 4 or 5 million men have been kept in confinement in enemy countries, and that many of them will return with impaired mentality to their homes. Dr. Vischer is well read in his subject and accepts Dr. F. W. Mott's dictum (THE LANCET, Jan. 26th, 1918) that hysteria and severe neurasthenia are seldom seen in prisoners' camps; but he draws a picture of a mentality characteristic of prisoners of war, to which the majority fall victim within two or three months and from which few escape completely. The factors in its causation he considers to be partly the monotonous and scanty food-supply, the absence of fresh air, the circumstances of their incarceration, the loss of personal freedom, and the loneliness; summing up in one sentence the three basal factors as follows—loss of liberty for an unknown period in close company with many others. The result is a continual longing with entire inability to perform. The factor of loneliness in the midst of company he illustrates from writings emanating from various camps. A little poem entitled "Lagereinsamkeit," from Knockaloe, begins with the stanza—

> Kein Plätzchen in der Hütte,
> Kein Fuss breit Platz im Freien,
> Wo du nur auf Sekunden
> Mal könntest einsam sein—

which may be compared with a passage from Gaston Riou's "Journal d'un Simple Soldat," which runs:—

> "..... vivre entre hommes, rien qu'entre hommes, tous les jours, toutes les nuits, cœur à cœur, bec à bec, griffe à griffe, sans activité, sans solitude, sans la compagnie de femmes—c'est autre solitude,—oui, c'est cela le purgatoire!"

And in the midst of this loneliness "the barbed wire draws itself like a red thread" through his whole world of thoughts. Not only so, but it impels him to resistance. The prisoner finds himself obliged to kick against the pricks. He is always on the defensive, and begins to complain not only of the management of the camp, but also of his friends and relatives, and this not only in word but in writing. The camp magazines of all countries

[1] Die Stacheldraht-Krankheit: Beiträge zur Psychologie des Kriegsgefangenen. 1918. Rascher and Cie., Zurich. Fr. 1.60.

show a marked resemblance in this respect. In the German camps the prevailing feeling is one of mistrust, which especially takes the form of suspecting those who bring the post. In camp jargon, the postal officials are supposed to be always "trying it on," which is an inadequate translation of the German "Schiebung." The word constantly recurs in the records of the camp satirists. Briefly, the camp community consists of people who hope and wait together, and in so doing become wearied in mind and soul. Some find outlet in gambling, many in the familiar occupation of "grousing." Rumour plays a large part in camp life. Reports which are not at first actually believed circulate freely, so that the whole camp population may pack their things at night in preparation for a departure on the morrow, of which there was no reasonable prospect. Ruhleben has been described by an inmate as the "City of Futility." Even the best-educated has to struggle to perform mental work of any kind. Concentration becomes ever more difficult. Restlessness sets in, with mental fatigue, on the slightest exertion, whether of mind or body. Lack of memory is a frequent complaint. The depression as it increases involves disinclination to speak, and gradually the full picture develops of what is called "Stacheldraht-Fieber," and familiarly "grauer Vogel," or in French "cafard." Dr. Vischer found many grades of the affection, but is unable to give any idea of the proportion of severe cases. He instances 3 out of 30 in one hut, 50 out of several hundred in one camp. Cases are more marked as well as more numerous among internés than prisoners of war for the reason, Dr. Vischer thinks, that the former are often people who left their homes in order to find a freer existence elsewhere, and are therefore peculiarly intolerant of restraint. His statement is noteworthy that bad and even brutal treatment does not produce the disease, while good treatment does not keep it in check. Even a charming site for the camp is no prophylactic, as those will guess who have had to deal with sick folk kept for long periods away from home in beautiful surroundings. In regard to recovery he can say but little, except that the condition is not cured at once on leaving the camp. When it is in any way highly marked recovery may require a long time. Many of the internés gave him the impression of broken people. An old general who visited a number of his own officers and privates interned in Switzerland frankly admitted that he could not understand them, nor they him. The latter part of Dr. Vischer's monograph is given up to an interesting comparison of barbed-wire disease with other similar conditions. Napoleon in St. Helena suffered from an "irritation nerveuse considérable." The "mentalité grégaire" of isolated military colonies, the mass illusions of seamen becalmed on the equator, the trivial quarrels of polar explorers, the frequent neurasthenia noted in the French maritime service: all these he finds nearly akin. In all may appear the irritability, the ideas of suicide and persecution, the various obsessions, and the desire for solitude and isolation. The polar explorer has the most intimate points of similarity with the prisoner of war, with the great difference that his incarceration is voluntary. Dr. Vischer concludes with an expression of thankfulness at the share which Switzerland has taken in mitigating the prolonged isolation of the war prisoner.

THE MEDICAL SERVICE OF THE ROYAL AIR FORCE.

WE publish in another column a letter from Sir Arbuthnot Lane, Dr. G. A. Sutherland, and Mr. Joynson-Hicks, M.P., calling attention to the announcement made in Parliament last week by Major Baird, Under Secretary of the Air Ministry, in respect of the appointment of the Medical Administrator of the Medical Service of the Royal Air Force. The letter exposes exactly a situation of considerable anxiety. Not a word in it suggests that the appointment has been offered to an officer who has not the proper qualifications, and as a matter of fact the record of the officer in question, Colonel Fell, R.A.M.C., is favourably known. But Sir Arbuthnot Lane and his co-signatories call attention to the fact that no guarantee is forthcoming either from Colonel Fell himself or from Major Baird, speaking for the Royal Air Force, that under Colonel Fell's administration the scientific prospects of the Medical Service of that Force will be maintained in the promising position laid down by the newly devised conditions of the Service. These conditions were published in THE LANCET, Sept. 28th, and were read with high satisfaction by the medical profession as representing an improvement from the scientific point of view upon any terms which have hitherto been offered to the medical profession when engaged on naval, military, civil, or administrative work. Our remarks upon the conditions might well have formed the text for the letter in our columns from Sir Arbuthnot Lane, Dr. Sutherland, and Mr. Joynson-Hicks. The conditions of the Royal Air Force Medical Service, following on the Report of the Watson Cheyne Committee, make proper room for the allocation of all the medical officers of the new Service to occupations for which they are fitted, and secure the promotion by selection of particular men for particular work. To say, as Major Baird did in Parliament, that Colonel Fell will be guided by the principles of the Watson Cheyne Report is not enough. An excellent set of conditions has been devised by a strong Committee, has received the approval of the sister services and scientific laymen; to learn that they may form a guide to the conduct of the Service is to arouse a very natural suspicion that the Report of the Committee is going to be set aside, how, when, and where it may suit the incoming administration. Why can this natural suspicion not be removed?

RECONSTRUCTION IN NEUROLOGY.

OUR present ideas upon biological evolution have resulted in large measure from the work of Darwin and Spencer. Shortly after the publication of their writings workers in all branches of science—zoology, physiology, sociology, clinical medicine, and the rest—began to see the application of the principles of progressive change and evolutionary adaptation to their own particular problems, but until recently little coördination of the results obtained along these various lines of investigation had taken place. Few clinicians, for example, were conversant with the works of Marshall Hall, Balfour, Foster, Lankester, and Gaskell, whilst to laboratory workers the generalisations of Anstie, Laycock, and Hughlings Jackson from cases of disease were almost unknown. In the "seventies" and "eighties" the English school of neurology was still dominated by physiological conceptions, but with the discoveries of motor cerebral localisation and its

implications by Ferrier, Horsley, Gotch, Mott, and others anatomical and structural conceptions gained the upper hand. Now, however, the pendulum is swinging back again, and principles deduced from careful clinical investigations correlated with the findings of experimentalists are taking their proper place. This subtle change in the attitude of the neurologist not only to disease but also to its general effect upon the patient is ably described by Dr. Henry Head in his presidential address before the Neurological Section of the Royal Society of Medicine, which we print on another page. This change, in which Dr. Head has himself played no mean part, really began with the foundation by Michael Foster of the Cambridge School of Physiology. A band of workers whom he collected around him devoted themselves to the problems of nervous activity, but for many years to the bulk of the medical profession their findings remained a closed book. Even now few practitioners are fully aware of the light which the experiments of Gaskell, Sherrington, Anderson, Langley, Dale, Keith Lucas, and others throw upon the every-day problems of general practice; the essential message of Hughlings Jackson's writings in THE LANCET and *Brain* was not intended to have special appeal, but thirty years ago the general audience must have been small. To Jackson the inner meaning of disordered process was of greater importance than the obvious disability. Following him, English neurologists are beginning to see the fundamental importance of the functional adaptation shown in the integrative action of the nervous system and mind, and in dealing with the injuries, diseases, and disorders of the nervous system resulting from the stresses of war, the universal application of this principle has forced itself upon our notice. Nervous, mental, psychological, and sociological problems all illustrate the principles of incomplete adaptation. Dr. W. Aldren Turner, in his paper on the Neuroses and Psychoses of War, published in last week's issue of THE LANCET, stated that all neuroses, whether of the individual or of the nation, are the consequences of a failure of psychological adaptation or readjustment to environmental conditions. Such functional failure of adaptation can only be properly faced when the principles underlying it are kept constantly in view. No static solution of these problems is possible, and no scheme can command success which does not allow of progressive evolutionary change towards more complete adaptation. This principle also has its application in the wider fields of national reconstruction.

BOTULISM DUE TO CANNED VEGETABLES.

THE form of food poisoning known as botulism was first described in Germany, where it was found to be due to infection of meat or fish with the *Bacillus botulinus*, ham or sausage (as the name implies) being the usual source of the poisoning. In the *Journal of the Canadian Medical Association* for October, Captain E. C. Dickson, C.A.M.C., has published an important paper from the Laboratory of Experimental Medicine, Stanford University Medical School, San Francisco, in which he shows that since December, 1913, it has been recognised in the United States that botulism may be due to vegetable foods. In that month, as already recorded in THE LANCET of August 24th, p. 246, an outbreak of food poisoning of the botulinus type occurred at a "Sorority house" at Stanford University, in which 12 persons were poisoned by eating a salad prepared from home-canned beans. It was not proved that the beans were infected with the *B. botulinus*, but a series of experiments were made which showed that the toxin of the bacillus may be formed in mediums prepared from peas, beans, corn, asparagus, artichokes, peaches, pears, apricots, and prunes. Records were then collected of a series of outbreaks in which poisoning was caused by one or other of these vegetables or fruits, in all cases home-canned. Botulism differs from the usual type of food poisoning in that the central nervous system is essentially involved. It is not an infection but an intoxication, being due to a toxin somewhat analogous to the toxins of diphtheria and tetanus, which is formed in the food before it is eaten. It is never formed in the body as the optimum temperature for the bacillus is 24° to 28° C., and the toxin is not formed at 37·5° C. (the normal body temperature). The prevalence of the toxin in American home-canned vegetables and fruits is due to the fact that methods of sterilisation are not sufficient to kill the spores. The common practice is to immerse the filled jar in boiling water in a wash boiler for from two to three hours. But experiments show that emulsions of the spores resist immersion in boiling water for more than two hours. Very few outbreaks have been due to commercially canned vegetables, because in the United States vegetables are sterilised with steam under pressure at a temperature of 240° to 250° C. In all the cases of poisoning the food was not cooked before it was eaten. It has been shown that the toxin is destroyed if heated to the boiling-point, and that contaminated food is safe, so far as botulism is concerned, if cooked before it is eaten. In a number of instances portions of contaminated food have been cooked and eaten without ill-effect, while the remaining portion has been served as a salad and caused fatal poisoning. It appears that food which shows signs of spoilage, and for this very reason may be canned, is particularly dangerous. The process of home canning is not common in this country, which perhaps accounts for immunity from this form of food poisoning.

THE EFFICIENT TEACHING OF NURSING.

Dame Ethel Becher was only voicing the general feeling of the nursing world when, at a recent complimentary luncheon, as matron-in-chief of Queen Alexandra's Imperial Military Service, she spoke of the high ideals which the nurses of this country have always kept before them. It is in the translation of these ideals to actual practice that the difficulty is encountered. At present, apart from the lectures given by the medical staff, instruction in nursing methods is largely of a haphazard character and left to tired ward-sisters and over-burdened matrons, the results naturally being often disappointing to pupil and teacher alike. Matrons and sisters often do not know how to teach because they have not themselves been taught. The appointment of sister-tutors in connexion with training schools would ensure efficient instruction in nursing methods, and the College of Nursing, Ltd., has been enabled to offer through the Nation's Fund for Nurses three studentships, valued at 100 guineas each, in order to facilitate these appointments. Many hospitals and Poor-law infirmaries are prepared to appoint nurse-instructors or

sister-tutors, and it is to be part of the constructive work of the College of Nursing to qualify the trained nurse for these posts. Delay in State registration need not prevent progress in the direction of desirable constructive work. There is ample reason why it would be better to offer these studentships rather than to await the actual end of the war, or the great processes of rearrangement that will follow, yet for the moment prompt action has debarred nurses on active service from competing. The training schools have lost some of their best teachers, and the probationers are already suffering from this loss. The Entrance Examination for the studentships was held at King's College for Women on Sept. 3rd, 1918, and included two papers, one on general knowledge and the other on purely nursing topics. Two of the successful candidates come from a London school, the third from the Royal Infirmary, Manchester. The course at King's College for which the studentships are granted is an experimental one, subject to improvement from year to year. The nurses will derive benefit from working in the College with students of wider outlook, and the contact will help to break down the too cloistered attitude of the nurse's mind. We welcome the institution of these studentships and hope that next year they may be increased. Lady Cowdray has offered a special studentship for Aberdeen nurses.

Professor J. G. Adami, Colonel, C.A.M.C., has been appointed one of the Canadian representatives upon the permanent Inter-Allied Committee for the Treatment of the Disabled Soldier, and is attending the Conference now sitting in Paris.

THE death is announced, at the advanced age of 94 years, of Sir Hermann Weber, who graduated in medicine at the University of Bonn in 1848 and became a Fellow of the Royal College of Physicians of London in 1859. To him we largely owe the beginnings of the modern science of climatotherapy.

THE fourth annual report of the Medical Research Committee of the National Health Insurance has just been issued in the form of a pamphlet of 80 pages (Cd. 8981. Price 4*d.*). The report covers the work of the year ending Sept. 30th, 1918. We are indebted to the Committee for a further summary of work done abroad on the epidemiology and bacteriology of influenza.

A MEMORANDUM ON INFLUENZA

FROM THE ROYAL COLLEGE OF PHYSICIANS OF LONDON.

IN view of the alarming and contradictory reports of the present epidemic of influenza that have appeared in the public press, the Royal College of Physicians of London has made the following authoritative statement in the public interest:—

[MEMORANDUM.]

The past few weeks have now afforded sufficient experience to permit some positive statements to be made. Though the epidemic shows signs of abatement in London, it is still severe elsewhere; moreover, its after-effects call for intelligent anticipation.

The present epidemic is virtually world-wide, irrespective of race, community, or calling. Similar world-wide epidemics occurred in 1803, 1833, 1837, 1847, 1890. The long intermission since the last widespread epidemic had already made an early reappearance probable, but the conditions of epidemic prevalence of influenza are too obscure to allow of precise prediction.

This outbreak is essentially identical both in itself and in its complications, including pneumonia, with that of 1890. The disproportionate occurrence of a special symptom, a well-recognised phenomenon in the case of epidemics—as, for example, nose bleeding in the present epidemic—does not invalidate this statement. The present epidemic has no relation to plague, as some have suggested.

Although there can be no question that the virus of influenza is a living organism, and capable of transference from man to man, yet the nature of the virus is still uncertain. It is possibly beyond the present range of microscopic vision. The bacillus discovered by Pfeiffer, commonly known as the influenza bacillus, has in the past been regarded as the probable cause, though on insufficient evidence. There is doubt as to the primary part it plays in the disease, important though it probably is as a secondary infecting agent. Pfeiffer's bacillus, the pneumococcus, and above all in this epidemic the streptococcus, seem to be responsible for most of the fatal complications of influenza.

Infection is conveyed from the sick to the healthy by the secretions of the respiratory surfaces. In coughing, sneezing, and even in loud talking these are transmitted through the air for considerable distances in the form of a fine spray. The channels of reception are normally the nose and throat.

It is manifest that the closer the contact the more readily will this transmission occur; hence the paramount importance of avoiding overcrowding and thronging of every sort, whether in places of public resort, public conveyances, factories, camps, dwelling rooms, or dormitories.

The sum of available evidence favours the belief that the period of incubation is about 48 hours or even somewhat less.

The dangers of influenza are gravely increased by the complications, and much can be done to avoid or to mitigate these. Such complications may develop insidiously, and without previous signs of severe illness.

Carefulness does undoubtedly decrease, and carelessness increase, both morbidity and mortality; it is important, therefore, that the public should have a clear idea of such measures of personal prophylaxis as are available against infection; larger measures of public health, administered by Government or local authorities, stand outside the scope of the present Memorandum. The individual must be taught to realise and acquiesce in his duty to the community.

Well-ventilated airy rooms promote well-being, and to that extent, at any rate, are inimical to infection; draughts are due to unskilful ventilation and are harmful; chilling of the body surface should be prevented by wearing warm clothing out of doors.

Good nourishing food, and enough of it, is desirable; there is no virtue in more than this. War rations are fully adequate to the maintenance of good health, though they may not afford just the particular articles that each fancy demands. Alcoholic excess invites disaster. Within the limits of moderation each person will be wise to maintain unaltered whatever habit experience has proved to be most agreeable to his own health.

The throat should be gargled every four to six hours, if possible, or at least morning and evening, with a disinfectant gargle, of which one of the most potent is a solution of 20 drops of liquor sodæ chlorinatæ in a tumbler of warm water. A solution of common table salt, one teaspoonful to the pint of warm water, is suitable for the nasal passage; a little may be poured into the hollowed palm of the hand and snuffed up the nostrils two or three times a day.

Since we are uncertain of the primary cause of influenza no form of inoculation can be guaranteed to protect against the disease itself. From what we know as to the lack of enduring protection after an attack, it might in any case be assumed that no vaccine could protect for more than a short period. But the chief dangers of influenza lie in its complications, and it is probable that much may be done to mitigate the severity of the affection and to diminish its mortality by raising the resistance of the body against the chief secondary infecting agents. No vaccines should be administered except under competent medical advice.

No drug has as yet been proved to have any specific influence as a preventive of influenza.

At the first feeling of illness or rise of temperature the patient should go to bed at once and summon his medical attendant.

The early stages of an attack are the most infective, but infection may persist throughout the illness, and segregation should be maintained at least till the temperature is normal.

Relapses and complications are much less likely to occur if the patient goes to bed at once and remains there till all fever has gone for two or three days; much harm may be done by getting about too early. Chill and over-exertion during convalescence are fruitful of evil consequences.

The virus of influenza is very easily destroyed, and extensive measures of disinfection are not called for. Expectoration should be received when possible in a glazed receptacle in which is a solution of chloride of lime. Discarded handkerchiefs should be immediately placed in disinfectant, or if of paper burnt.

The liability of the immediate attendants to infection may be materially diminished by avoiding inhalation of the patient's breath, and particularly when he is coughing, sneezing, or talking. A handkerchief should be held before the mouth and the head turned aside during coughing or sneezing. The risk of conveyance of infection by the fingers must be constantly remembered, and the hands should be washed at once after contact with the patient or with mucus from the nose or throat.

Each case must be treated, as occasion demands, under the direction of the medical attendant.

No drug has as yet been proved to have any specific curative effect on influenza, though many are useful in guiding its course and mitigating its symptoms.

The Memorandum closes with the statement that in the uncertainty of our present knowledge considerable hesitation must be felt in advising vaccine treatment as a curative measure. A warning is added that a period of enfeeblement following an attack of influenza should never be disregarded, as it is apt to mask the presence of other morbid conditions.

Correspondence.

"Audi alteram partem."

THE MEDICAL SERVICE OF THE R.A.F.: PRINCIPLES OF PROMOTION.

To the Editor of THE LANCET.

SIR,—Major Baird's statement in the House of Commons on Nov. 4th that the appointment of Director of the Medical Service had been offered to Colonel Fell, who would act on the principles of the Advisory Committee's Report, hardly coincides with the position as we see it at the moment, and the matter is of such vital importance, not merely to the future of the Air Service, but to the whole medical situation throughout the country, that we enture to trouble you with the following remarks.

The Report of the Flying Services Medical Advisory Committee, to give it its full title, was a long and carefully considered document, unanimously passed on Nov. 29th, 1917, not only by the civilian members, but also by the representatives of the Admiralty, the War Office, and the Air Service. Put shortly, the whole object of this Committee in formulating their scheme for an Air Medical Service was that promotion should be by medical efficiency, and not, as in the R.A.M.C., by administrative capacity.

The most important proposal involved the formation of a service in which specialisation and efficiency, assisted by a wise system of competition, would afford to the State a body of expert medical men who would rise in rank independently of the necessity of discarding the practice of their profession in order to assume administrative duties, which system prevails in the existing medical services.

The Report further contemplated the appointment of three Medical Officers for Training, for Air Command, and for Hospital Work, and four officers for the supervision of general pathology, sanitation, statistics, and medical supplies.

We will not trespass upon your space to describe in detail the proposals of the Committee; suffice it to say that in our opinion the ground was laid for a Medical Service superior to that of any existing force.

As part of these proposals a Medical Administrative Committee was instituted in order to assist the Medical Administrator of the Air Force in carrying into effect the principles of the Report. They have devoted nearly a year to this work, which is now to be thrown on one side.

It is known, moreover, that after the war the medical administration of the three Services will in all probability be amalgamated into one Imperial Medical Service, and it is of the highest importance from every point of view that the administration of this united Service should be scientific in the best sense of the term. Moreover, it is more than probable that the new Civilian Medical Service, which will presumably be the outcome of the Ministry of Health, will, in fact must, be founded on either the lines of the R.A.M.C. or the lines of the Air Force Medical Service, and again we suggest that it is of vital importance to such Civilian Service to commence on what we conceive to be the right lines.

Now, however, the work of the Advisory Committee is being undone by the Air Council. The office of Medical Administrator has apparently been offered to Colonel Fell (a gentleman of whose administrative abilities we say nothing, but who, during the war, has occupied himself simply and solely with administration in various areas), with freedom from the control of the Medical Administrative Committee. It is possible that he may work on the principles of the Report, but it is hardly likely, particularly as Major Baird admits that the Administrative Committee has as such been dissolved, and we can find no trace of its retention in an advisory capacity as suggested by the Under-Secretary; in fact, at the last meeting of the Committee on Oct. 21st the chairman stated that the Committee was automatically dissolved and that there would be no further meeting.

Surely the Air Board will not, without consulting the Committee, which took so much pains to lay the proper foundations of the Medical Service, tear up all its work and lose the opportunity of founding a really scientific Medical Service for the new Air Force.—Yours, &c.,

W. ARBUTHNOT LANE,
G. A. SUTHERLAND,
} Members Medical Advisory Committee.
W. JOYNSON-HICKS,
Chairman, Parliamentary Air Committee.

Nov. 7th, 1918.

THE TREATMENT OF INCIPIENT MENTAL DISEASE.

To the Editor of THE LANCET.

SIR,—Among the proposals for reconstruction wnich are to the fore is one for legalising treatment of persons who are suffering from incipient mental disease. The Board of Control have devoted some space to the subject in their fourth annual report recently issued, where they suggest (amongst other things) the amendment of the present law (1) to enable incipient cases of mental disorder to receive treatment in general or special hospitals, mental institutions, &c., for not more than six months without the necessity for certification under the Lunacy Acts; (2) to permit the establishment at general hospitals of sections for both in- and out-patients for the early diagnosis and treatment of incipient cases; and (3) to extend to public asylums the principle of voluntary admission which now obtains with respect to private asylums.

It does not appear to be generally known that the London County Council has already to some extent anticipated the first and third at least of these suggestions in connexion with its proposed use of the Maudsley Hospital at Denmark Hill. This hospital, originated by the late Dr. Henry Maudsley, towards the erection of which by the Council he generously contributed the sum of £30,000, is designed for the early residential treatment of acute cases of mental disorder and for the provision of advice and treatment for out-patients. It has not yet been used for the purpose intended, for it was taken over by the War Office before the building was completed, and is now being used for treatment of neurasthenic and shell-shock cases arising from military service. In anticipation of its use, however, upon the lines originally laid down, the London County Council, in its General Powers Act, 1915, obtained authority to receive and treat voluntary boarders at the hospital. The powers obtained were somewhat restricted, but they will permit the Council, when the hospital reverts to the use for which it was designed, to receive as patients persons who desire *voluntarily* to submit themselves for treatment. It is the fervent hope of many who are associated with the care and treatment of mental cases that this power, together with the establishment of a clinic at the hospital, will afford means of early treatment, which may avoid the necessity for subsequent certification in many cases, and will further help to spread a general knowledge of mental diseases which is often, for a variety of reasons, not found to-day.

I am, Sir, yours faithfully,

R. J. COOPER,
Chairman of the Asylums and Mental Deficiency Committee of the London County Council.

County Hall, Spring Gardens, London, S.W., Nov. 6th, 1918.

To the Editor of THE LANCET.

SIR,—On Oct. 5th you published a letter of mine dealing with the early diagnosis and treatment of the insane. Judging by private correspondence and conversation which I have had since then, I think I ought to explain in more detail what I intended. I pointed out the difficulties that beset the general practitioner in the diagnosis and treatment of insanity in its early stages. When the reform of lunacy practice comes about I hope that it will be found possible to provide expert assistance for the general practitioner. What I would suggest would be that in any case of suspected insanity the practitioner in attendance should have the right of calling in an appointed specialist, just in the same way as he can now do in the case of suspected tuberculous disease. In this case it should be arranged that the medical attendant would actually meet the specialist in consultation. The medical attendant would then have the advantage of a really useful clinical lecture, and the advantage would extend not only to the patient, but to the expert who would often see what he now seldom has an opportunity of seeing—the patient in the early stage of his illness in his usual and ordinary surroundings; and he could not fail to gather useful information as to the cause of his attack and guidance for treatment, which must vary with the circumstances of different patients.

I do not see what other chance there is for a specialist to get these patients at this stage at a clinic where he could demonstrate their condition to the practitioners who are anxious to be taught. It has always seemed to me that, in a very large proportion of diseases, a clinic in a patient's natural and usual surroundings must have a great advantage

over any other form of teaching. A question might arise as to who should be the expert. The answer to this is not the intention of my letter, but I would suggest that the most suitable person to call in would be the medical superintendent of the county asylum of the area in which the patient is residing. It would be impossible for any local authority to suspect him of having any sordid interest in any treatment he might recommend.—I am, Sir, yours faithfully,

Bradford-on-Avon, Oct. 28th, 1918. CHAS. E. S. FLEMMING.

THE VISITS OF CONSULTANT PHYSICIANS TO PRIVATE SERVICE LUNACY PATIENTS.

To the Editor of THE LANCET.

SIR,—I have been in practice now for 45 years and have done consulting work in mental medicine for over 32 years. During the whole of that period I have seen many patients at the request of their relatives in public asylums, registered hospitals, licensed houses, private care, and in many nursing homes, and until this case my visits have never been opposed but rather welcomed, and I can look back to many very happy hours spent in some of these institutions. I fear from what I hear from several medical men this has not always been the case in their experience.

Not long ago I was asked by a brother of a private service patient in a county asylum to visit and report on his brother's case. I agreed to make this consultative visit and asked him to write to the medical superintendent of the said institution asking for permission for such visit. I also wrote asking the medical superintendent for permission to visit this patient. I received a letter from the medical superintendent stating that such a visit of an outside practitioner to any patient in his asylum would be creating a precedent and that he must refuse permission. I at once pointed out Sec. 47 of the Lunacy Act which dealt with this question and also wrote to the Board of Control. The brother of the patient wrote to the Board also, pointing out the same section, and referred to the report of the Select Committee on admission of friends, relatives, and medical men to patients in institutions for the insane. The Board of Control refused to intervene on the ground that it would create a precedent for an outside practitioner to visit any patient in a public asylum. To this a solicitor replied, saying that unless an order was given for my visit under Sec. 47 of the Act he should immediately apply for a mandamus. A similar request from the wife of the patient was enclosed. By return of post an order for my visit was sent. I wrote to the medical superintendent, telling him the day and time I was coming down, and asking him to let me see the entries in the case-books and the certificates upon which the patient was received as a private service patient. I also asked if he would kindly tell me the best means of getting quickly from the railway to the asylum. To this letter I received no reply. I arrived at the asylum at about the time stated in my letter, and was told by the head attendant that he had orders to allow me to see the patient. I asked that I might first see the entries in the case-book *re* the case, and also the certificates upon which he was received. His answer was that he had orders not to show me these. I found the patient in bed. I asked why he was in bed, and was told, "To see you." I examined him, and all I could get from him was that he wanted to get back to his wife and family, and to work for them; that he had tried to commit suicide when in a hospital at Cambridge, and that he felt he was buried alive. I then asked several questions of the attendant in charge, who was unable to reply to them. The medical officer in attendance on the patient refused to see me.

The solicitor then wrote to the Board of Control, telling them what had happened and asking for another order with special instructions that I was to see the entries in the case-book and the certificates in respect of the patient, and some medical man. To this letter the Board of Control answered that I had already visited the patient and that there was no reason for granting another order. The matter is now before counsel as to the next step to be taken.

I admit that the Board of Control have the right to make the order for such visits as I proposed, and that they reserve that right lest undesirable persons should seek admission to patients in asylums, but I hardly see how a medical consultant can be considered an undesirable visitor.

I am, Sir, yours faithfully.

LIONEL A. WEATHERLY, M.D.

Winsley House, Bournemouth, Nov. 7th, 1918.

PHTHISIS IN FACTORY AND WORKSHOP.

To the Editor of THE LANCET.

SIR,—As chairman of the Subcommittee on Phthisis in Relation to Occupations appointed by the Medical Research Committee, I would point out that Dr. Benjamin Moore's article in your issue of Nov. 9th was a contribution to the work which is being carried out by this committee of the Medical Research Committee, which was started in 1914 under the chairmanship of Dr. Addison, and the members of which now are Dr. Brownlee, Professor W. Bulloch, Dr. Edgar Collis, Sir Walter Fletcher, Captain Major Greenwood, Dr. Benjamin Moore, and Dr. Leonard Hill. A report of the Subcommittee on the Boot and Shoe Industry was issued by the Medical Research Committee in 1914, and therein the idea of the factory sanatorium was put forward—an idea which arose out of a conversation between Dr. Edgar Collis and Dr. Eslemont. In a paper published in the Proceedings of the Tuberculosis Conference at Leeds in 1913 Dr. Edgar Collis pointed out that the incidence of tuberculosis among adult males, as compared with that of females, suggested an industrial influence, and that the lack of this difference for males and females in agricultural areas supported this suggestion. Dr. Brownlee, in a report recently published by the Medical Research Committee, further and extensively examined the incidence of phthisis in rural and industrial districts. Dr. Benjamin Moore now concentrates attention on, and still further elucidates, this important matter.

I am, Sir, yours faithfully,

Loughton, Nov. 11th, 1918. LEONARD HILL.

DISPENSARY SUPERVISION IN PULMONARY TUBERCULOSIS.

To the Editor of THE LANCET.

SIR,—Dr. Geo. Jessel's paper on the above subject in your issue of Oct. 26th raises the very important question, Are the tuberculosis dispensaries really doing anything to reduce tuberculosis? Dr. Jessel does not, naturally, attempt to answer this question, but only claims that, in his experience, "dispensary supervision has resulted in a considerable measure of success." What may be the kind and degree of this success is not made clear in his paper, as his own figures show that, with the same staff of nurses, the number of cases under observation increased from 1164 in 1916 to 1615 in 1917. That this increase cannot be attributed to greater accuracy in notification Dr. Jessel has himself pointed out.

Dr. Jessel assumes that the possession of a separate bedroom is synonymous with "complete isolation," and from this concludes that "home treatment is thus possible and safe in about 70 per cent. of cases occurring in the industrial areas of Lancashire at any rate." Unfortunately, a long and intimate acquaintance with the industrial conditions of Lancashire has convinced me that this assumption is entirely fallacious. A consumptive who is not bedridden will, of course, make his way to the fire in the "living-room," and when he becomes bedridden the very warmth of Lancashire people's family affection will effectually prevent his being left in "splendid isolation."

The fact has to be faced that vital statistics show no decline whatever either in the incidence of tuberculosis or the mortality from this cause, and if, as Sir James Barr asserts, our present methods are not only futile but mischievous, it will not do to hide our heads in the sand of such phrases as "studying every patient in relation to his environment." Dr. Jessel emphasises the importance of consultation with the "general practitioners," and it is satisfactory to learn that the profession is thus giving a fair trial to the system. I have no doubt that such consultation with experienced practitioners must be of value to officials who, prior to the passing of the Insurance Act, were themselves, as a rule, either general practitioners or medical students.

I am, Sir, yours faithfully,

FRED E. WYNNE,
Medical Officer of Health, Wigan; President, N.W. Branch,
Nov. 7th, 1918. Society of Medical Officers of Health.

THE Royal Dental Hospital, Leicester-square, has received a donation of £300 from the Alexandra Day Committee, being the amount allocated to this hospital from Her Majesty Queen Alexandra's Special List.

Obituary.

LIEUTENANT-COLONEL E. F. HARRISON, C.M.G.

IF the death of Colonel Harrison had occurred nine months ago his loss would have been a national disaster. As it is, worn out by unremitting toil of the last three and a half years, he has died in the moment of the victory in the winning of which he played so great a part. Only a few people, and the public not at all, have any idea of the immense debt that the country owes to Harrison. They have dimly apprehended the fact that very soon after the introduction of gas warfare the British established a preëminence in methods of defence which has been retained up to the end. In this work of gas defence Harrison was the guiding brain; not only were the methods employed for the greater part his invention, but the enormous organisation necessary for their utilisation by our troops was due to his business capacity and brain power. It is impossible to reckon the thousands of lives which have been saved by his work; without this we might more than once have met with disaster under the influence of the new chemical poisons continually being introduced by our enemies. During practically the whole of this time Harrison was compelled to work in a subordinate position. Not till a week before his death, in the fifth year of the war, had he been appointed Controller of Gas Services. If this had happened only a year ago we should not have remained hopelessly behind the Germans in our gas offensive, and under Harrison's direction we might have achieved as notable a success in the offensive use of gas as we have throughout enjoyed in the defence against gas.

Harrison was a man of acute brain, and with a wide knowledge of his subject, endowed with the spirit of an investigator, he would have made a name for himself in pure chemistry had he elected to apply himself to research. Previous to the war, however, he had been engaged in work as an analytical chemist and was chiefly known to the public as the author of two works on "Secret Remedies" which had been published by the British Medical Association. His training, however, had made him peculiarly fitted for the task to which he was called in the nation's hour of trial. He had acquired technical skill, methodical habits of work, a great knowledge of chemical material, and a wide acquaintance with chemical processes and with sources of supply. Although endowed with indomitable resolution, he was modest and unassuming in manner, so that he was able to get things done without giving offence to those whose deficiencies he had to supplement. This characteristic of his was invaluable to him in his dealings with the War Office. When met by the obstructions of slackness and incompetence in other departments he slowly gained his way by steady, quiet persistence. Hindered again and again in the organisation of his department, and in obtaining the necessary personnel as well as the proper rank for them which would have enabled him to delegate part of his arduous duties, he got the essential work done by himself doing the work of two men. It is hardly to be wondered at that, when the stroke came in the form of an attack of influenza, it found his reserve forces exhausted and that the worn-out machine succumbed.

Throughout his work Harrison was actuated by the purest patriotism, and there was never any trace of self-seeking or desire for honours. As soon as he recognised that the war was going to last some years he threw up his private work and enlisted as a private in May, 1915. With the formation of the Chemical Corps he was made a corporal in this corps. Almost immediately afterwards—in July, 1915—he was given a commission and appointed to work with a number of other chemists in the R.A.M. College. Here his first duty was to assist in the experiments being made at that time on the improvement of the gas helmet. In September he was appointed to act as head of the chemical department, and 12 months later was made officer in charge of the Anti-gas Department. When he came to the R.A.M. College the gas helmet had been recently introduced. Harrison, while working on the improvement of this helmet and at securing some standard of excellence in its manufacture, was continually striving to obtain a means of protection, not only against phosgene, chlorine, and similar gases, but also against all possible poisonous gas. The first result of his endeavours was the production of the large box respirator, often spoken of as "Harrison's Tower," which was intended only for the use of the special Chemical Corps. The increasing concentration in the phosgene used by the enemy and the introduction of new poisonous gases made it evident that an equally complete protection would have to be provided for all the troops, and experiments carried out by Harrison and under his guidance finally led to the adoption of the present type of box respirator. Having settled upon the type, it was necessary to ensure the manufacture, not only of the chemicals, but also of the multifarious parts of each respirator on an enormous scale. The chemical protection involved first the working out of a method for making permanganate granules. Then it was necessary to discover the best methods of preparing charcoal, the absorptive powers of which may be altered 20 times according to the method of preparation. At first these substances were made by private firms, but their resources not proving adequate to the enormously increasing demands Harrison organised large factories where the process of manufacture was carried out under his direction. Every one of the parts had to be perfect, since any defect might lead to the loss of life of the soldier. Some idea of the magnitude of the task may be gleaned from the fact that, in addition to 15 000 workpeople directly under the Anti-gas Department, there were 120,000 engaged in the manufacture of box respirators. The perfection of the organisation and the foresight employed can be gauged from the fact that at no time did Harrison fail to respond to any increased demand, however unexpected. When the Americans failed to turn out, as they had expected, sufficient box respirators in time to equip their troops Harrison was able to supply all deficiencies. In the spring of this year there was much anxiety lest the Italian Army should be knocked out by a gas attack similar to that which initiated the disaster at Caporetto. A sudden resolution was adopted to equip the Italian Army with the British respirator, and within one month Harrison furnished the Army with a million of these respirators.

Harrison had the satisfaction of the consciousness of work well done. Though he was the driving brain and force of the whole organisation of gas defence, he had only received the rank of Lieutenant-Colonel, and shared the honour of a C.M.G. with a host of mediocrities. And yet his part in gaining our complete victory has been not inferior to that of any general in the field. It is to be feared that, because he worked out of sight and because he was not a professional soldier, his great services may be forgotten. They will, however, always rank high in the memory of his friends and fellow workers, and in the proud remembrance of his children.

E. H. STARLING.

MEREDITH TOWNSEND, M.R.C.S., L.S.A.,

LATE MASTER OF THE APOTHECARIES' SOCIETY.

WE regret to announce the death, from pneumonia following influenza, of Mr. Meredith Townsend, late Master of the Apothecaries' Society of London, which occurred on Nov. 5th, at Barnes, in the house of Dr. M. Milton Townsend, his son. Mr. Meredith Townsend was born in 1847, the son of Dr. Henry Meredith Townsend, who practised in Clapham. He entered the medical school of St. Thomas's Hospital on leaving school, and qualified as M.R.C.S.Eng., L.S.A., in 1868. Going immediately into practice in the south-west of London, he was for no less than 50 years medical officer to the Kensington guardians. He resided for many years in Upper Phillimore-place, and for 35 years he was surgeon to the F Division of the Metropolitan Police and public vaccinator for Kensington. In 1914–15 he was Master of the Worshipful Society of Apothecaries, and at the time of his death represented that corporation on the General Medical Council. He was also a very active member of the executive committee of the Belgian Doctors' and Pharmacists' Relief Fund, and through his energy the Apothecaries' Society allowed their premises to become a depôt for surgical instruments which were distributed among the Belgian medical men.

Mr. Townsend only retired formally from medical practice a few weeks before his death. His widow and ten children, four sons and six daughters, all survive him.

Dr. O. Veraguth has been appointed Director of the Clinic for Physical Therapeutics in Zurich with the title of professor.

The War and After.

THE CASUALTY LIST.

THE following medical officers appear among the casualties announced since our last issue:—

Died of Wounds.

Capt. J. J. Tough, R.A.M.C., qualified at Edinburgh in 1910. He held appointments at the Sick Children's Hospital and at the Royal Infirmary, Edinburgh, and prior to joining the R.A.M.C. was in practice at Accrington.
Lieut. D. W. Sinclair, R.A.M.C., attached R. Scots.
Capt. H. Dunlop, Canadian A.M.C.

Previously Reported Wounded, now Reported Died of Wounds.

Capt. N. H. Little, Canadian A.M.C.
Capt. H. P. Whitworth, R.A.M.C., attached Scottish Borderers, was a student at Guy's Hospital, London, and qualified in 1914.

Died.

Major D. Burrows, R.A.M.C., qualified at Glasgow in 1902. Prior to joining the R.A.M.C. he was in practice in Sierra Leone, where he was provincial medical officer. He died at the War Hospital, Chester.
Lieut.-Col. J. T. McEntire, R.A.M.C., qualified at Dublin in 1903 and joined the R.A.M.C. shortly afterwards.
Capt. L. T. McClintock, R.A.M.C., qualified at Edinburgh in 1901 and held an appointment at the Salop Infirmary. At the time of joining the R.A.M.C. he was in practice at Loddon, Norfolk, where he was medical officer to the Red Cross Hospital and to the workhouse, and was also public vaccinator for the district.
Capt. C. H. V. Smith, Canadian A.M.C.

Wounded.

Capt. E. Rogerson, R.A.M.C., attached K.R. Rifles.
Col. H. N. Dunn, C.M.G., D.S.O., R.A.M.C.
Capt. T. L. Bomford, I.M.S.
Capt. L. H. Fraser, Canadian A.M.C.
Capt. J. Rowland, R.A.M.C.
Capt. A. R. Hagerman, Canadian A.M.C.
Capt. M. W. Thomas, Canadian A.M.C.
Surg. D. L. Baxter, R.N.
Capt. W. G. Shakespeare, R.A.M.C.
Capt. E. T. Curran, Canadian A.M.C.

CASUALTIES AMONG THE SONS OF MEDICAL MEN.

The following additional casualties among the sons of medical men are reported:—

Lieut. J. E. Stephen, The Buffs, attached Indian Infantry, killed in action, only son of Temp. Lieut.-Col. G. N. Stephen, R.A.M.C., of the staff of the *British Medical Journal*.
Lieut. H. A. Edridge-Green, R.W.F., attached R.A.F., died at Dover, only son of Dr. F. W. Edridge-Green, of Willesden, London, N.W.
Lieut.-Col. A. Thorp, D.S.O., R.A., killed in action, eldest surviving son of the late Dr. C. W. Thorp, of Todmorden, Lancs.
Acting Major E. H. S. Chapman, Indian Cavalry, died abroad of influenza, only son of Dr. H. F. Chapman, of Richmond, Surrey.
Capt. C. B. Girvin, Royal Dublin Fusiliers, died in camp in Yorkshire, only son of Col. J. Girvin, A.M.S.
Second Lieut. S. C. L. Guilding, R.F.A., died abroad of influenza, only son of Dr. L. M. Guilding, of Reading.
Lieut. W. Adam, Yeomanry, attached Machine Gun Corps, died from influenza, following on wounds received in action, third son of the late Dr. J. Adam.
Second Lieut. T. H. Hammond, M.G.C., killed in action, only son of the late Dr. T. Hammond, H.M. Prison Service, Liverpool.
Lieut. H. T. P. Moore, M.C., R.F.A., killed in action, only son of Lieut.-Col. E. J. Moore, C.B., R.A.M.C., of Blackheath, London.
Capt. H. P. D. Helm, R.A.F., late Border Regiment, eldest son of Dr. R. D. Helm.
Lieut. L. T. D. Stables, Northamptonshire Regiment, killed in action, second son of Dr. W. W. G. Stables, of Upper Norwood, London, S.E.

REPATRIATED MEDICAL OFFICERS.

The following members of the R.A.M.C., who were prisoners in Germany, have now reached England:—

Capt. W. Arnott; Capt. M. T. Ascough, M.C.; Capt. A. G. Blaset, M.C.; Capt. T. Blackwood; Lieut. A. Boyle; Capt. H. Crassweller; Capt. C. R. Crowther; Capt. S. J. Darke, M.C.; Capt. W. F. Dunlop; Capt. J. G. Elder; Capt. M. S. Esler; Capt. C. W. Fowler, M.C.; Capt. D. Gillespie; Capt. L. S. H. Glanville; Lieut.-Col. A. C. H. Gray; Capt. P. H. Green; Capt. E. H. Griffin, D.S.O., M.C.; Capt. R. M. Handfield Jones, M.J.; Capt. W. G. Harnett; Capt. G. F. P. Heathcote, M.C.; Capt. A. C. Hepburn; Capt. R. W. Hodgson Jones; Capt. C. E. P. Husband; Capt. W. J. Isbister, M.C.; Capt. G. L. Jones; Lieut. J. W. Jones; Lieut.-Col. H. B. Kelly, D.S.O.; Major J. Kennedy; Major J. S. McConachie, M.C.; Lieut. A. M. McCormick; Capt. J. M. Mackenzie, M.C., Capt. D. Macnair; Capt. H. C. Martin; Capt. W. T. P. Meade-King; Capt. C. A. Meaden; Capt. C. Mearns; Lieut. O Le F. Milburn; Col. A. Milne-Thompson, C.M.G., M.C.; Capt. J. C. Muir; Capt. F. C. Nicholls, M.C.; Capt. W. O'Brian; Lieut. F. B. O'Dowd; Capt. R. W. Pearson, M.C.; Lieut. E. S. Phillips; Capt. S. V. P. Pill; Lieut. F. J. Power; Capt. W. A. Rees; Lieut. D. Robertson; Capt. J. Ross, M.C.; Lieut. W. H. Rowden; Capt. A. B. Simpson; Capt. F. P. Smith; Capt. R. M. Soames; Capt. J. Sullivan; Capt. J. Tate; Capt. F. R. Tickle; Capt. G. Torrence, M.C.; Capt. W. Warburton; Capt. D. A. Wilson; Capt. C. Witts, M.C.

THE HONOURS LIST.

The following awards to medical officers are announced. All are members of the R.A.M.C. unless otherwise stated:—

Bar to the Distinguished Service Order.

Capt. (acting Lieut.-Col.) GEORGE PRITCHARD TAYLOR, D.S.O., M.C.—For conspicuous gallantry and devotion to duty in arranging for clearing the wounded in the forward area during an attack. He personally reconnoitred the whole area and arranged relay posts for the bearers, freely exposing himself in the front line to heavy fire while searching for wounded. Throughout the operations the wounded, thanks to his splendid zeal and devotion to duty, were cleared with remarkable rapidity.

Distinguished Service Order.

Major FREDERICK NEILL LE MESSURIER, Australian A.M.C.—For conspicuous gallantry and devotion to duty. He was continuously in the front line during both stages of an attack, assisting in collecting and arranging for the prompt disposal of the wounded to the rear. He behaved splendidly, and by his untiring efforts and a complete disregard of his own safety he greatly assisted the brigade throughout.

Lieut.-Col. ARTHUR MITCHELL WILSON, Australian A.M.C.—For conspicuous gallantry and devotion to duty during an attack while in charge of bearer divisions. He followed close on the heels of the infantry into captured villages, establishing bearer-posts, and effected the evacuation of the wounded with remarkable rapidity. He worked splendidly throughout, and by his untiring devotion to duty saved a number of lives.

Second Bar to the Military Cross.

Capt. JAMES ALWIN COLVILLE SCOTT, M.C.—For conspicuous gallantry and devotion to duty. He attended to a very large number of wounded in the open, under heavy fire from machine-guns and artillery, and it was largely owing to his skilful arrangements that the casualties were rapidly evacuated. Later on, while performing these duties, he was severely wounded by shell fire. Throughout the whole of the operations his courage and his example of self-sacrifice were worthy of high praise.

Bar to the Military Cross.

Capt. FRANK WILLIAM FAY, M.C., Australian A.M.C.—For conspicuous gallantry and devotion to duty during an attack. He was in charge of motor ambulances, and before moving them forward he reconnoitred the roads at considerable risk in his car. He remained on duty continuously for four days, exploring each route and opening up new tracks for each successive advance. By his untiring zeal and devotion to duty he enabled the evacuation of the wounded of two divisions to be smoothly continued.

Temp. Capt. ARTHUR WILMOT RAYMOND, M.C.—For conspicuous gallantry and devotion to duty. Hearing that a number of wounded men were on an exposed ridge in front, he went forward with his stretcher party, and, in spite of heavy machine-gun fire, dressed and evacuated them all. This incident was typical of his spirit, for throughout operations he displayed magnificent courage.

Capt. ALEXANDER FRAZER WILSON, M.C.—For conspicuous gallantry and devotion to duty. He attended to the wounded of a party which was caught in a sudden barrage of enemy high-explosive and gas shells, working in the open under heavy fire. He succeeded in dressing their wounds and evacuating them to hospital. His coolness and disregard of his own safety were worthy of great praise.

Military Cross.

Temp. Capt. LEO BLAKE.—During operations in connexion with a counter-attack he displayed great courage and skill in attending to the wounded at all hours of the day and night.

Temp. Capt. FERGUSON FITTON CARR-HARRIS, D.S.O.—For conspicuous gallantry and devotion to duty during an attack. He attended the wounded under heavy fire and organised bearer parties. It was due to his fine example under most difficult conditions that a large number of wounded were evacuated from "No Man's Land."

Temp. Capt. FRANCIS WILLIAM CLARK.—He dressed the wounded continually by day and by night, although his aid-post had no cover except small banks and he was constantly under heavy shell fire. His cheerful devotion to duty was a splendid example to all.

Temp. Capt. PERCY SELWYN CLARKE.—For conspicuous gallantry and devotion to duty. After an unsuccessful attack he went out into "No Man's Land" and attended to many wounded, being exposed to heavy shell and machine-gun fire the whole time. His courage and coolness were a fine example to the stretcher-bearers working under him, and encouraged them in their difficult and dangerous task.

Capt. ELMER JOHN DICKINSON, Canadian A.M.C.—For conspicuous gallantry and devotion to duty. He attended to the wounded, both our own and those of our Allies, in a first aid post close to the enemy lines under heavy fire and aircraft attacks. On two occasions enemy aircraft flying very low fired into the post, breaking the medicine bottles and causing casualties. He behaved with great coolness and courage, inspiring the men around him and keeping up the spirits of the wounded by his example.

Lieut. WILLIAM ALDRIDGE FRASER.—For marked courage and untiring zeal in carrying out his duties under heavy artillery and machine-gun fire. He inspired all his staff by his energy in organising parties to bring in wounded, thereby saving many lives.

Temp. Capt. JOHN WILLIAMSON FREW.—For conspicuous gallantry and devotion to duty. During five days' hard fighting he was indefatigable in attending to the wounded, leading his bearers forward under heavy fire to the regimental aid-posts, arranging for the evacuation of casualties and maintaining the supply of medical necessaries. His example of disregard of danger greatly encouraged his bearers, and his efforts undoubtedly saved many lives.

Temp. Capt. FREDERICK WAISTELL HIRD.—For conspicuous gallantry and devotion to duty. He remained for two and a half days in a village that was being heavily shelled and many houses of which were in flames, and attended to a very large number of wounded from our own and Allied troops. When his aid-post was set on fire he was indefatigable in his efforts to remove the wounded to a safer place. The excellent manner in which he organised stretcher parties under heavy fire undoubtedly saved many lives, and he set a splendid example to all who were working with him.

Capt. WILLIAM JOSEPH LACY-HICKEY.—For conspicuous gallantry and devotion to duty. He worked for two days and two nights practically without sleep attending to the wounded in the field and organising stretcher parties to evacuate the casualties. His work was carried out under the most difficult conditions, and he was under heavy fire the whole time. He set a very fine example of courage and endurance.

Capt. ALGERNON GEORGE ROWLEY LILFORD, Australian A.M.C.—For conspicuous gallantry and devotion to duty. He remained at his post under gas-shell and H.E. bombardment which exploded gas shells near by. His cool example and energy caused the successful evacuation of patients and saved many lives.

Lieut. GERALD ESMOND MACALEVEY.—For great gallantry and resource in evacuating casualties from rear aid-posts under heavy artillery and machine gun fire. Though frequently forced to move on account of hostile fire, he never lost touch with any of them, and it was entirely due to his untiring devotion that all the casualties were safely cleared.

Capt. DONALD WALTER McCREDIE, Australian A.M.C.—For conspicuous gallantry during an advance. His battalion was practically isolated for two days, during which he tended wounded under fire. He continually crossed machine-gun-swept spaces, after stretcher-bearers had been shot down, to attend wounded. Throughout he showed untiring energy and devotion to duty, and by his fine conduct saved many lives.

Capt. JOHN CLARK McCULLOUGH, Canadian A.M.C.—For conspicuous gallantry and devotion to duty. Under heavy shell fire, and at great personal risk, this officer continued to attend to the wounded of his own and other units until he himself was seriously wounded. On previous occasions his fine work has resulted in the saving of many lives.

Capt. (acting Major) GEORGE MORTIMER McGILLIVRAY.—For conspicuous gallantry and initiative during an attack. As officer in charge of bearers, he personally visited all regimental aid-posts and maintained a continuous evacuation of casualties. He also, under heavy fire, led a bearer party to clear a wood of wounded. He behaved splendidly and saved a large number of lives.

Capt. MALCOLM ARCHIBALD McKECHNIE, Canadian A.M.C.—For conspicuous gallantry and devotion to duty. He worked with untiring perseverance in evacuating the wounded from the field of action, under heavy fire, until he was seriously wounded himself. It was largely due to his efforts and self-sacrifice that the casualties were so successfully and rapidly evacuated from the area.

Temp. Capt. JAMES FRANKLIN McLAY.—For great courage and devotion to duty in tending to the wounded under heavy shell fire. His conduct was worthy of the highest praise.

Temp. Capt. MICHAEL MURPHY.—For conspicuous gallantry and devotion to duty during an attack. He worked continuously for 36 hours attending the wounded under heavy fire and evacuated a large number of cases. It was due to his splendid energy that the evacuation of the wounded was so successfully carried out.

Capt. JOHN MILLIE PRINGLE.—For conspicuous gallantry and devotion to duty. He attended to the many casualties of two battalions, working in the open under heavy fire for 36 hours without rest. During 10 days' hard fighting he was untiring in his efforts, and it was very largely due to his excellent organisation in one locality that the wounded of five battalions were successfully evacuated. He set a splendid example.

Temp Capt. DANIEL FALCONER RIDDELL.—For conspicuous gallantry and devotion to duty in tending to the wounded under trying conditions. His skill and coolness under fire undoubtedly saved many lives.

Temp. Capt. (acting Major) GAVIN STIELL.—For conspicuous gallantry and devotion to duty. He went with a party of volunteers to an Allied field artillery position which was being heavily shelled, the ammunition also of the dump in the vicinity exploding, as it was on fire, and superintended the dressing and removal of the casualties. He was quite regardless of his own safety, and worked with an energy and determination that undoubtedly enabled the rapid evacuation of the wounded to be completed. He was eventually wounded himself.

Temp. Capt. DENNIS JEFFCOTT STOKES.—After a shell had burst in his dug-out, killing or wounding all those present, he continued without any hesitation to dress the wounded, notwithstanding his exposed position and the enemy artillery fire. His cheerfulness and courage were instrumental in saving many lives.

Temp. Capt. WILLIAM HENRY SUTCLIFFE.—For conspicuous gallantry when acting as ambulance bearer officer. He superintended the clearing of wounded under heavy fire, and successfully evacuated all casualties from the posts under very trying conditions. Though several of his stretcher-bearers were wounded, he kept in constant touch with the units in the line. His untiring devotion was a splendid example to the men.

Temp. Capt. JOHN CHARLES WOOTON.—He attended to the wounded throughout the day, in spite of gas and heavy shell fire. On one occasion the roof of the aid post was blown in on the top of him. Later, when his aid-post was the furthest forward of any, he dealt with casualties under constant fire. His cheerfulness and confidence were an inspiring example to all.

Bar to the Distinguished Service Cross.

Surgeon ALFRED ROBINSON MACMULLIN, D.S.C., R.N.—For services with the 63rd (Royal Naval) Division in France. He worked unceasingly day and night for three days to succour the wounded. Times without number, when the enemy shelling and machine-gun fire was at its worst, he walked about in the most exposed places attending to the wounded, being utterly indifferent to his own safety. The result was that the lives of many men were saved who might otherwise have been blown to pieces where they lay. Throughout the whole of the operations his unflinching bravery won the admiration of all who saw him.

THE CONTRIBUTIONS TO RED CROSS.

M. Cambon, the French Ambassador, gave his support last week to the continued claim of the Red Cross upon the generosity of the nation. The occasion was the handing over to the French Red Cross by the Lord Mayor of London of a cheque for £355,530 collected on "France's Day." The most difficult time in France, M. Cambon said, will be after the conclusion of peace, because there will then be a very expensive liquidation. Crowds of repatriated men, mutilated and invalid, will return from Germany, and France will have to care for a great number of cripples, of blind men, and of needy people of every kind. M. Cambon welcomed the comradeship of charity which has been established between the women of France and of England, and drew a picture of women in their homes teaching French children to love England and English children to love France.

MEDICAL DEMOBILISATION.

Many of the surgeons in the Royal Naval Volunteer Reserve and medical officers of the Special Reserve and Territorial Forces have served away from the area of their practices since the beginning of the war, and the Central Medical War Committee has made a recommendation that all such who were engaged in private practice at the time of mobilisation should be released before other medical officers serving temporarily with the Forces. A resolution to this effect has been forwarded to the Ministry of National Service for transmission to the Interdepartmental Committee on Demobilisation, the Ministry itself endorsing the principle. Further, the Army Medical Department has agreed that Territorial and Special Reserve medical officers who have served since the beginning of the war should be released first from the Army, and that temporarily commissioned R.A.M.C. officers who have served longest should have the first claim for early repatriation, while those who have qualified since the war should be withdrawn from the Army last.

URBAN VITAL STATISTICS.

(Week ended Nov. 9th, 1918.)

English and Welsh Towns.—In the 93 English and Welsh towns, with an aggregate civil population estimated at 16,500,000 persons, the annual rate of mortality, which had increased from 11·4 to 43·0 in the six preceding weeks, further rose to 43·8 per 1000. In London, with a population slightly exceeding 4,000,000 persons, the death-rate was 55·5 per 1000, and coincided with that recorded in the previous week; among the remaining towns the rates ranged from 15·7 in Carlisle, 16·2 in Exeter, and 16·6 in Rochdale, to 63·8 in Swindon, 65·8 in Cambridge, 71·0 in Gillingham, 74·8 in West Ham, and 75·9 in Sheffield. The principal epidemic diseases caused 198 deaths, which corresponded to an annual rate of 0·6 per 1000, and included 57 from diphtheria, 52 from infantile diarrhœa, 35 from measles, 32 from whooping-cough, 16 from scarlet fever, and 6 from enteric fever. The deaths from influenza numbered 7560, or 148 above those recorded in the previous week, and included 2433 in London, 402 in Sheffield, 247 in Leeds, 223 in West Ham, 187 in Birmingham, 186 in Bristol, and 168 in Hull. The 1197 cases of scarlet fever and 1155 of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital were 4 and 11 below the respective numbers remaining at the end of the previous week. The causes of 75 deaths in the 96 towns were uncertified, of which 10 were registered in Birmingham and in Liverpool, 7 in Nottingham, 5 in Stoke-on-Trent, and 4 in London.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2,500,000 persons, the annual rate of mortality, which had increased from 10·6 to 30·5 in the eight preceding weeks, fell to 27·0 per 1000. Of the 1244 deaths from all causes, 87 were classified to influenza, which was also stated as a contributory cause in 447 deaths classified to other diseases; in the previous week these numbers were 66 and 493 respectively. The 410 deaths in Glasgow corresponded to an annual rate of 19·2 per 1000, and included 4 from diphtheria, 3 from whooping-cough, and 1 each from enteric fever and infantile diarrhœa. The 235 deaths in Edinburgh were equal to a rate of 46·2 per 1000, and included 2 each from scarlet fever and infantile diarrhœa, and 1 from whooping-cough.

Irish Towns.—The 459 deaths in Dublin corresponded to an annual rate of 60·0, or 5·5 per 1000 below that recorded in the previous week, and included 204 from influenza, 5 from infantile diarrhœa, 3 from diphtheria, and 1 each from scarlet fever and whooping-cough. The 256 deaths in Belfast were equal to a rate of 34·0 per 1000, and included 2 from infantile diarrhœa.

Medical News.

SOCIETY OF APOTHECARIES OF LONDON.—At examinations held recently the following candidates passed in the subjects indicated:—

Surgery.—M. Girgis (Sect. I.), Univ. Coll. Hosp.; O. Halstead (Sects. I. and II.), Guy's Hosp.; W. H. Haupt (Sect. II.), George Washington Univ.; D. Menzies (Sect. I.), St. Mary's Hosp.; G. E. Spero (Sect. I.), London Hosp.; and T. C. Stephen (Sects. I. and II.), Manchester.

Medicine.—M. Ibrahim (Sect. I.), Middlesex Hosp.; and T. A. Jordan (Sect. I.), Manchester.

Forensic Medicine.—C. R. Corfield, Manchester; I. R. Florence, Guy's Hosp.; H. B. Hyde, Middlesex Hosp.; G. F. Smith and T. C. Stephen, Manchester; and J. L. Walker, Glasgow and Univ. Coll. Hosp.

Midwifery.—G. M. Beaven, St. George's Hosp.; C. R. Corfield, Manchester; H. D. L. Jones, St. Mary's Hosp.; and S. H. Robinson, Guy's Hosp.

The Diploma of the Society was granted to the following candidates, entitling them to practise medicine, surgery, and midwifery: O. Halstead, W. H. Haupt, and T. C. Stephen.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.—The next quarterly meeting of the association will take place on Tuesday, Nov. 26th, at 11, Chandos-street, Cavendish-square, London, W., under the presidency of Dr. John Keay, at 2.45 P.M. Dr. David Orr and Dr. R. G. Rows will contribute a paper (illustrated by lantern) entitled "The Interdependence of the Sympathetic and Central Nervous Systems."

INFLUENZA IN IRELAND.—Our Dublin Correspondent writes: Like other large cities in the kingdom, Dublin has suffered heavily from influenza. For several weeks physicians and general practitioners have been overwhelmed with work, and many among them have suffered in their own persons, although up to the present only one member of the profession in Dublin, Mr. J. H. R. Holtby, chief demonstrator of anatomy in Trinity College, has lost his life. The labours of medical men were rendered much heavier by the present shortage of nurses. Fortunately, the past 10 days show a great decrease in the number of cases, and few fresh cases are now occurring. The entire mortality of the disease appears to have been due to bronchopneumonic complications. In the week ending Nov. 2nd 501 deaths were registered as occurring in the Dublin registration area. This represented an annual rate of mortality of 65·5 per 1000 of the population. The annual death-rate for the 44 weeks ending Nov. 2nd was 22·3 per 1000. Of the 501 deaths, 250 were registered as due to influenza and 89 to pneumonia. It is probable that the great majority of cases of pneumonia occurred in patients suffering from influenza. Our Belfast Correspondent writes: The influenza epidemic, after prevailing for about five weeks, is now very extensive in Belfast. Unlike the June visitation, which spread upwards socially from the workers, the present scourge attacked the better classes first, but has rapidly spread to all sections of the people, being in type, as a rule, mild, but with many deaths due to so-called pneumonia complications, which on post-mortem examination show the lungs filled with a hæmorrhagic exudate full of streptococci. The public health authorities have at last awoke (Nov. 7th), but their action is hopelessly belated. Indeed, the present situation would make thinking people very cynical were it not for the Hibernian sense of humour. Pasted in the windows of the tramcars is a public notice issued by the health committee, in which they "recommend all schools (both Sunday and day schools) and places of public entertainment be closed for at least ten days." As a result some of these places obey, others refuse; indeed, one of the kinema managers, in refusing to close, announced in one of the Belfast papers his willingness to show on the screen remedies for the influenza, and gave one—"phenol"—as a "sure and certain cure," by the use of which, he wrote, his employees were immune. Some of the schools have closed, others are still open, the education authorities concerned believing that to call on them to close these institutions while all places of amusement are allowed to be filled as usual is little short of a farce, and the public health authorities, it is reported, have no compulsory powers. The following precaution (suggested by the public health committee)—"avoid all crowded gatherings"—appears in the tramcars, but can only be read when these thronged methods of conveyance are free of the central strap-hangers. The public are becoming quite panicky, some calling out for injections of vaccine and others using remedies of which among the working classes the following is said to be the most popular: "24 drops of phenol to 8 ounces of water, two teaspoonfuls of the dilution being a dose." What amount of scheduled poison may thus be taken? Possibly an amount which in some people would cause carboluria. To crown all, owing to a strike of labourers in the house- and street-cleansing departments of the town council, the streets and back-yards of a great city with a population of 400,000 people have been left derelict for almost five weeks, so that from a sanitary point of view there is not at the present moment a more actually filthy city than Belfast. Everyone dreads—as a result—another epidemic which may be even worse than the influenza, though as I write (Nov. 12th) the strike has ceased.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE.

Surgeon Lieutenants to be Surgeon Lieutenant-Commanders: S. W. Grimwade, B. Taylor, H. H. Ormsby, E. Moxon-Browne, and A. E. P. Cheesman (acting Surgeon Lieutenant-Commanders), H. E. Perkins, E. C. Holtom, C. F. Willes, J. G. Danson, G. J. Carr.

ARMY MEDICAL SERVICE.

Col. Sir William B Leishman to be Major-General, vice Major-Gen. Sir W. G. A. Bedford, retired.

Col. R. H. Luce (T.F. Res.) to be temporary Major-General.

ROYAL ARMY MEDICAL CORPS.

Temp. Major W. Murray (Lieutenant Colonel, R.F.A., T.F.) to be temporary Lieutenant-Colonel.

Majors relinquishing the acting rank of Lieutenant-Colonel on re-posting: T. B. Moriarty, C. G. Browne.

To be acting Lieutenant-Colonels:—Whilst employed as Assistant Directors of Medical Services: Major (Bt. Lieut.-Col.) H. V. Bagshawe; Temp. Capt. W. Angus. Whilst in command of Medical Units: Majors G. De la Cour, J. J. O'Keeffe, A. W. Gater; Capts. A. C. Elliott, J. F. Grant, S. J. Higgins, E. A. Strachan.

Temp. Capt. W. Edmondson to be acting Major whilst specially employed.

To be temporary Majors: Temp. Major W. F. L. A. Holcroft (from South African Medical Corps) and Major R. S. White (from North Rhodesian Medical Corps).

Captains relinquishing the acting rank of Major on re-posting: T. J. Kelly and W. F. Christie.

Temp. Capts. C. L. T. Arthur and H. T. H. Butt relinquish the acting rank of Major.

To be acting Majors: Capts. P. A. Opie, F. P. Rankin, H. W. Carson, T. F. Kennedy, H. P. Rudolf, J. P. Litt, C. K. G. Dick, D. W. Pailthorpe, and H. Bedingfield; Temp. Capts. P. McCoil (while specially employed), G. D. Laing, K. C. Middlemiss, A. E. Quine, R. B. Roe, W. W. Forbes, G. F. Bird, J. S. Stewart, A. Ryland, and A. B. Cardew; Temp. Lieut. T. E. Coulson.

The undermentioned temporary Lieutenants to be temporary Captains: F. W. Maunsell, W. Dalgleish, C. H. A. Alderton, J. Robertson, W. O. Pitt, J. B. Burt, R. E. Moyes, H. Walker, V. T. P. Webster, J. J. Smith, M. J. Lundy, J. M. Sheridan, W. T. Thomson, F. J. Cutler, I. Feldman, W. Murray, E. Clarke, W. H. Richardson, R. A. Miller, J. McCausland, H. M. Gilbertson, A. Evans, F. W. K. Lawrie, W. S. Gibson, T. C. Graves, H. Love, W. H. Condell, H. F. Penman, W. H. Ogilvie, G. Hoffmann.

To be temporary Captains: Capts. T. S. Keith (from Royal West Surrey Regiment, T.F.), A. Wallrugh (South African Medical Corps), J. Humphreys, C. W. J. Dunlop, T. Sheehan, A. E. Gravelle, C. V. Cornish.

To be temporary Honorary Captains: D. R. W. Crile, J. S. Burn (whilst employed with St. John Ambulance Brigade Hospitals).

To be temporary Lieutenants: G. S. Livingston, W. J. G. Johnson, T. W. Lumsden, S. A. Bontor, H. G. Watters, R. H. Tiley, H. H. M'Clelland, W. J. N. Todd, A. Lion, M. Rust, S. J. Healy, P. Carroll, G. A. Valentine, M. Cahill, J. N. McTurk, C. A. D. Bryan, J. Moxton, W. H. M. Smith, C. B. Gervis, G. A. Fothergill, R. J. Smith, T. T. Smith, J. D. B. Williams, A. Shearer, A. E. Ainscow, H. H. Patrick, S. T. Rowling, W. C. Morton, B. Dunlop, D. A. Johnstone, F. Anderson, D. M. Barcroft.

To be temporary Honorary Lieutenants: C. H. Backus, A. H. Möller (whilst serving with Welsh Hospital, Netley).

Officers relinquishing their commissions: Temp. Major A. M. Leake, V.C; Temp. Capts. (acting Major) C. Roche (on account of ill-health contracted on active service, granted honorary rank of Captain), L. G. White (on account of ill-health, granted honorary rank of Captain); Temp. Capts. M. J. Mulligan and W. H. Howat (on account of ill health contracted on active service, and are granted the honorary rank of Captain), H. A. Cecil (on account of ill health, and is granted the honorary rank of Lieutenant); Temp. Hon. Capt. A. Rensuaw (on ceasing to be employed with Welsh Hospital, Netley); Temp. Lieut. H. N. Marrett.

Canadian Army Medical Corps.

Temp. Major J. S. Carruthers to be temporary Lieutenant-Colonel.

Temporary Captains to be temporary Majors: T. L. Towers, H. W. Whytock, (acting Major) J. R. Goodall, G. E. McCartney, (acting Major) H. J. Williamson.

Temp. Capt. R. N. W. Shillington to be acting Major while specially employed in a Hospital Ship.

Temp. Capt. W. A. Wilson to be acting Major while specially employed at a General Hospital.

Temp. Capt. (acting Major) C. F. Martin to be acting Lieutenant-Colonel while specially employed as Officer in Charge of a Medical Division.

Hon. Capt. H. J. Testar to be Honorary Captain, with pay and allowances.

ROYAL AIR FORCE.

Medical Branch.—F. F. Muecke (temporary Major, R.A.M.C.) is granted a temporary commission as Major and to be acting Lieutenant-Colonel whilst employed as Lieutenant-Colonel. The undermentioned are granted temporary commissions as Captains: G. C. Hall (Surgeon-Captain, retired, I.M.S.) and R. J. Aherne (late temporary Captain, R.A.M.C.). E. T. McElligott and W. C. A. Ovey are granted temporary commissions as Lieutenants.

Dental Branch.—The undermentioned are granted temporary commissions as Lieutenants: W. J. Singleton, J. Smith.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Parliament and the Armistice.

THE Prime Minister on Monday, Nov. 11th, read to the House of Commons the Armistice terms which the German delegates had signed that morning. The House adjourned immediately thereafter to a service of thanksgiving at St. Margaret's Church.

Ministries of Health Bill.

This measure was introduced by Dr. ADDISON, the Minister of Reconstruction, under what in Parliamentary procedure is known as the "ten minutes' rule." Ten minutes are allotted to the Minister for his introductory speech, and only one speech, similarly limited in time, is allowed of comment. Several Members rose to speak, but only one of them, Mr. HOGGE, had the opportunity of offering remarks on the measure. The Bill was formally read a first time, but there are now two motions for the rejection of the Bill on second reading. One stands in the name of Mr. HOGGE, the other in the name of Sir EDWARD CARSON. The motion of the latter is in the following terms:—

"That this House declines to proceed with a measure dealing with public health which excludes Ireland from the benefit of its provisions."

It is now announced that the Ministries of Health Bill will not be proceeded with this session. The text of the measure, however, is published.

Clause 1 sets out that for the purpose of promoting the health of the people throughout England and Wales, a Minister of Health may be appointed.

Clause 2 defines the general powers and duties of the Minister. It runs:—

It shall be the duty of the Minister to take all such steps as may be desirable to secure the effective carrying out and coordination of measures conducive to the health of the people, including measures for the prevention and cure of diseases, the treatment of physical and mental defects, the collection and preparation of information and statistics relating thereto, and the training of persons engaged in health services.

Clause 3 deals with the transfer of powers and duties to and from the Minister. It is as follows:—

(1) There shall be transferred to the Minister (*a*) all the powers and duties of the Local Government Board; (*b*) all the powers and duties of the Insurance Commissioners and the Welsh Insurance Commissioners; (*c*) all the powers of the Board of Education with respect to attending to the health of expectant mothers and nursing mothers and of children who have not attained the age of 5 years and are not in attendance at schools recognised by the Board of Education; (*d*) all the powers of the Privy Council and of the Lord President of the Council under the Midwives Act, 1902; (*e*) such powers of supervising the administration of Part I. of the Children Act, 1908 (which relates to infant life protection) as have heretofore been exercised by the Secretary of State.

is, however, provided that the power conferred on the Insurance Commissioners of retaining and applying for the purposes of research sums mentioned in the Insurance Act shall not be transferred to the Minister, but the duties performed by the Medical Research Committee shall be carried on under the direction of a Committee of the Privy Council. The clause proceeds:—

(2) It shall be lawful for His Majesty from time to time by Order in Council to transfer to the Minister: (*a*) all or any of the powers and duties of the Board of Education with respect to the medical inspection and treatment of children and young persons; (*b*) all or any of the powers and duties of the Minister of Pensions with respect to the health of disabled officers and men after they have left the service, (*c*) all or any of the powers and duties of the Secretary of State under the Lunacy Acts 1890 to 1911, and the Mental Deficiency Act 1913.

Power is taken to transfer to other Government departments certain subjects such as public libraries, museums, and gymnasiums, fire brigades, and other matters now under the administrative supervision of the Local Government Board.

Clause 4, which authorises consultative councils, is to the following effect:—

(1) It shall be lawful for His Majesty by Order in Council to establish consultative councils for giving in accordance with the provisions of the Order advice and assistance in connexion with such matters affecting or incidental to the health of the people as may be referred to in such Order. (2) Every such council shall include persons of both sexes, and shall consist of persons having practical experience of the matters referred to the Council.

Powers are taken to carry out from an office in Wales the powers and duties transferred from the Welsh Insurance Commissioners.

Clause 9 constitutes a Scottish Board of Health which shall take up in Scotland the duties which in England and Wales fall on the Minister of Health. It will consist of not more than six members, one of whom must be a medical man holding a Public Health Diploma. The Board will act under the directions of the Secretary for Scotland. The clause contemplates the appointment of a Scottish Parliamentary Under-Secretary.

Under Clause 10 the National Health Insurance Joint Committee shall consist of the Minister of Health, who shall be chairman, the Secretary for Scotland, and the Chief Secretary for Ireland, together with one other person appointed by the Minister, being a person having special knowledge and experience of national health insurance in Wales.

There are other provisions of the nature of machinery in the Bill.

HOUSE OF COMMONS.

WEDNESDAY, NOV. 6TH.

Influenza Epidemic at the Crystal Palace.

Answering Mr. CHANCELLOR, Mr. MACNAMARA (Secretary to the Admiralty) said: Since the present influenza epidemic broke out there have been 784 cases at the Crystal Palace; 538 were treated at the Palace, 233 were transferred from the Palace to local hospitals, and none were sent home for treatment. I should add, however, that 442 cases have been reported to us of men contracting influenza at home while on leave. As regards the number of deaths during the present epidemic, 3 died at the Crystal Palace, 93 died in local hospitals, and 10 died at their own homes.

Influenza at Blandford Camp.

In reply to Mr. W. ANDERSON and Sir G. GREENWOOD, who asked for information regarding Blandford Camp, Major BAIRD (Under Secretary to the Air Ministry), said: The conditions at Blandford Camp have been receiving the close attention of the Air Council. Personal inspections have been made by Sir Humphry Rolleston, a member of the Medical Administrative Committee, by the inspector of hospitals, and by the medical administrator. Additional doctors and nurses have been sent there, the hospital accommodation has been materially extended, and the camp has been kept well supplied with all necessary medical stores and equipment. The total number of men who now are or have been stationed at Blandford from Sept. 21st to Nov. 2nd, 1918, is 32,593. The total number of deaths has been 78. Of these 77 were due to influenza or pneumonia consequent on influenza. The percentage of deaths is therefore 0·24 per cent. and the weekly average 13·5. The average daily number of men under canvas for this period has been 6611. The number has been steadily reduced, and it is hoped that all the men will be in buildings by to-night. From now on no recruits will be put under canvas.

Local Government Board and Medical Research.

Sir WILLIAM COLLINS asked the Parliamentary Secretary to the Local Government Board what was the total sum expended on auxiliary scientific investigations and medical research from the establishment of the Board to the present time.—Mr. S. WALSH replied: The grant for auxiliary scientific investigations concerning the causes and processes of disease was transferred from the vote for the Privy Council Office, to that of the Local Government Board in the year 1877–78. From that year to the present date sums amounting to £77,258 18*s.* have been paid for those investigations. In addition sums amounting to £15,361 3*s.* 3*d.* have been expended by the Board in respect of their pathological laboratory which was established in 1910.

THURSDAY, NOV. 7TH.

R.A.M.C. Officers in Ireland.

Answering Mr. LARDNER, Mr. MACPHERSON (Under Secretary for War) said: A small number of officers of the Royal Army Medical Corps with recruiting experience have been employed in Ireland to assist the National Service Board. These officers are liable for service abroad if physically fit.

Dental Treatment of Discharged Soldiers.

Mr. PENNEFATHER asked the Financial Secretary to the War Office whether he would consider the advisability of so extending Army Council Instruction 1187 of 1918 as to include provision, if desired, for dental treatment prior to discharge of all soldiers returning from abroad whose teeth had deteriorated during their period of active service, and also to provide for the dental treatment, if desired, of all returned prisoners of war whose teeth had deteriorated during captivity.—Mr. FORSTER answered: This suggestion is not free from difficulty, but I will consider the question.

Medical Research Committee.

In reply to Sir WILLIAM COLLINS, Sir E. CORNWALL (representing the National Insurance Commissioners) wrote: The total sum expended up to the present time under my sanction and that of my predecessors under the National Insurance Act, 1911, by the Medical Research Committee has amounted to about £247,000.

Ministries of Health Bill.

Dr. ADDISON (Minister of Reconstruction) moved for leave "to bring in a Bill to establish a Ministry of Health and a Board of Health to exercise in England and Wales and in Scotland respectively powers with respect to health and local government and for purposes connected therewith."

He said: The war has revealed in a very striking manner what a good many of us have been calling attention to for many years—namely, the need for improvement in the health of our people. After the war the need will be greater almost than during the war for making the best use of all our powers and resources, and it is very certain that in the time of reconstruction we shall not be able to afford any waste either of material or of human power. The late Lord Rhondda, when he was President of the Local Government Board, invited me to take charge of an inquiry into this matter, and during recent months I have had very many consultations with the local authorities of this country, with medical men, and with representatives of the great insurance organisations, and the measure which I ask leave to introduce represents, except in some unimportant particulars, a common measure of agreement.

Mr. BOOTH: No.

Dr. ADDISON: The honourable Member not having seen the measure is not in a position to say. There is unanimity on the part of all who have examined this topic that steps are necessary and that it is impossible in this country either to prosecute a vigorous health policy or to secure efficient administration of it until we have brought about in the first place the consolidation of those Government authorities who have charge of it. For example, with respect to woman and her child, the Local Government Board, the Insurance Commission, the Home Office, and the Privy Council are all involved in various matters concerning the health of the mother and her child. I could, of course, furnish many illustrations, but it is obvious to anyone who has knowledge of public administration in this country that it is impossible to expect any progressive and continuous development of improved service while you have this overlapping in the central departments, and the main purpose of the Bill is to bring together, under one body of men and one Minister, the chief Government departments concerned in matters affecting the health of the people. Until that is achieved I am convinced that it is hopeless to expect any real and substantial improvement. This Bill does not provide medical treatment for any individual. It does not affect the functions of any local authority of any kind. It is purely concerned with bringing together the responsibilities of the different Government departments, both in England and in Scotland, which are concerned with health matters. The Bill brings together under one Minister the powers and duties of the President of the Local Government Board and the Health Insurance Commission of England and Wales. It brings in also the powers and duties of the President of the Board of Education with regard to the health of mothers and infants, the duties of the President of the Council with regard to midwives, and the Home Secretary with regard to the protection of infant life.

Sir E. CARSON: Does the Bill apply to Ireland?

Dr. ADDISON: I will deal with that presently. It unites those in one health department and then we take power in the Bill to bring in, as and when it is possible, other considerable health duties—namely, the medical inspection and treatment of school children, at the present time under the charge of the Board of Education. Further, all the health duties of the Ministry of Pensions as regards the treatment of sick soldiers and, finally, the powers of the Secretary of State for the Home Department with regard to lunacy and mental deficiency. It is not proposed to consolidate these latter powers at this stage. They are involved in various administrative arrangements which it would take some years at least to disentangle. A good deal of misapprehension exists with respect to this Bill owing, perhaps, to the fact that we have not been able to bring it forward earlier in consequence of the association of these health services with the present Poor-law duties discharged by boards of guardians who are responsible to the Local Government Board. I may say that the bringing together of the different services which I have mentioned in no way fixes to these services any Poor-law taint whatever. It is separate from them hereafter as it is now, for example, from the sanitary services of the local authorities. We have had an important committee presided over by the Deputy Chairman of Ways and Means, and I am authorised to say that the report of the Local Government Committee presided over by Sir Donald Maclean on the transfer of the functions of Poor-law authorities in England and Wales has been carefully considered by the Government, and that the Government accepts the recommendations of the committee that all services relating to the care and treatment of the sick and infirm should not be administered as part of the Poor-law, but should be made a part of the general health services of the country, and that the Government regards it as a matter of urgency that effect should be given to these recommendations as soon as possible. The Government accepts the principle that the remaining functions of the Poor-law authorities should be transferred to other bodies, but are not in a position to formulate precise proposals at the present time. Any approach to the complete application of the scheme recommended by the committee will involve a considerable length of time, and must be preceded by further inquiries into certain questions with regard to detailed matters. The Government recognises its responsibilities for making proposals on these subjects as soon as the exigencies of the Parliamentary situation permit of their doing so. I should like to say here that those enthusiasts for a Health Ministry who say we must wait until we have reformed the Poor-law are thoroughly impracticable people. The Poor-law will require many years of steady effort, both in this House and in connexion with administration, wholly to disentangle and to bring about the reforms which many of us desire, but we are not prepared to postpone until that is achieved the necessary consolidation of these important health services. With regard to Scotland, the Bill brings together in precisely the same way as in England these different health services under a board—a Board of Health—which is responsible to the Secretary for Scotland, who has had charge of this part of the Bill in the course of its formation. With regard to Ireland, we have not extended our proposals there in view of the possibility, as we hope soon, that Ireland may administer her affairs herself. But it is proposed to leave the position of the Irish Insurance Commissioners as far as possible unchanged. We do provide, however, for the continuance of the Joint Committee similar to that which is now in existence representing the four countries with regard to financial matters.

Sir E. CARSON: Is that all there is about Ireland in the Bill?

Dr. ADDISON: Another important feature of the Bill is that we provide advisory or consultative councils as part of machinery of the Ministry. This proposal has been a good deal criticised in many quarters, and I for one thoroughly believe in having at my elbow expert critics. I believe it will have a very wholesome effect on administrative work, certainly in the development of the health services of this country, if we have a live active body of this kind in existence.

Mr. CHANCELLOR: Are they to be empowered to go over the heads of the Ministry?

Dr. ADDISON: Certainly not. The Ministry must be responsible. In order that it may be made clear what the functions of these advisory councils are I propose to lay on the table of the House a draft Order in Council, which sets out their functions and which has been agreed to by all concerned. They deal with matters referred to the Ministry. They are to be able to make suggestions to the Ministry on subjects that may be referred to. They are also on their own initiative to make recommendations. We bring together, therefore, under this Bill all the important Government services which are concerned with health, and we thereby also bring under one Ministry the surveillance of all the local health services of the country. If this is achieved we believe that it will be possible to expect real progress with respect to the improvement in the health of the people. It is essential to take this step first because the legislation necessary to provide for the full development of the health services of the country may be controversial and certainly will be difficult and involved. Therefore it is necessary to take it in two stages. I believe that if we acquire the powers sought in this Bill we may for the first time in this country be able to develop and ultimately to apply scientific, well-thought-out and thorough health measures for the benefit of our people.

Mr. HOGGE gave certain reasons why he opposed the introduction of the Bill. In the first place, it attempted to take away from the National Health Insurance Commissioners in three parts of the kingdom their existing rights to deal with questions of disease and ill-health. He also opposed the Bill because there was associated with it the administration of the Local Government Board, which administered the Poor-law. If the right honourable gentleman had acquainted himself with the views held by large bodies of Approved Societies in England, Wales, and Scotland with regard to the inclusion of the functions of the National Health Insurance under any Government department associated with the Poor-law, he would have known the strength of the opposition to it. He knew that the right honourable gentleman had not taken the trouble.

Dr. ADDISON: That is entirely incorrect. I have consulted scores of representatives of authorities and of Approved Societies.

Mr. HOGGE said that he knew that as far as the National Health Insurance Commissioners in Scotland were concerned, they had never been asked their views at all on the question of a Ministry of Health and how far their functions should be roped in under the new arrangement. Moreover, in Scotland there was a demand for a separate Bill dealing with a Ministry of Health for Scotland. In these declining days of Parliament it was absurd to bring in what was really an electioneering measure.

Leave was given, and Dr. ADDISON formally brought in the Bill. He intimated that it was "backed" by Sir George Cave (the Home Secretary), Sir Auckland Geddes (President

of the Local Government Board), Mr. Munro (Secretary for Scotland), and Sir E. Cornwall (the representative of the National Insurance Commissioners).

The Bill was read a first time.

TUESDAY, NOV. 12TH.

Medical Women and Army Service.

Answering Mr. W. THORNE regarding the suggestion to give commissions to medical women, Mr. MACPHERSON (Under Secretary for War) said: I am informed that even if the Government entertained the proposal there is no possibility of the necessary legislation being introduced this session.

WEDNESDAY, NOV. 13TH.

The Shortage of Medical Men.

Major EDWARD WOOD asked the Representative of the National Insurance Commissioners whether his attention had been called to the difficulty experienced by many persons in country districts owing to the shortage of medical officers during the present epidemic of influenza in securing the certificate of a medical officer necessary to obtain sick benefit under the National Insurance Act; and whether he could make provision by which money to which such persons were entitled might be more easily and expeditiously obtained.—Sir E. CORNWALL replied: I am aware of and am giving careful attention to the serious difficulties under which the medical profession are striving to carry out their duties just how with their numbers so depleted by the demands of the Army for medical men and the great aggravation of these difficulties by the present epidemic, and I trust that Approved Societies generally are showing all possible consideration for these conditions in their dealing with sickness benefit claims from their members. But I am advised that a general relaxation of the requirement of periodical medical certificates as evidence of incapacity for work would be open to grave objection as tending to destroy the administrative basis requisite for financial stability.

Replying to a supplementary question, Sir E. CORNWALL stated that negotiations were now being carried on with a view to bring home medical men to this country as rapidly as possible.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.
THURSDAY, Nov. 21st.—Papers:—Mr. W. Stiles and Dr. F. Kidd: (1) The Influence of External Concentration on the Position of the Equilibrium attained in the Intake of Salts by Plant Cells; (2) The Comparative Rate of Absorption of various Salts by Plant Tissue.—G. Marinesco: Récherches Anatomo-Cliniques sur les Névromes d'Amputations douloureux—Nouvelles Contributions à l'Etude de la Régénération nerveuse et du Neurotropisme (communicated by Prof. F. W. Mott).

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.1.

Tuesday, Nov. 19th.

GENERAL MEETING OF FELLOWS: at 5 P.M.
Ballot for Election to the Fellowship. (Names already circulated.)

MEETINGS OF SECTIONS.

Tuesday, Nov. 19th.

PSYCHIATRY (Hon. Secretaries—Bernard Hart, G. F. Barham): at 4.30 P.M.
Presidential Address:
Dr. William McDougall, F.R.S.: The Present Position in Clinical Psychology.

Wednesday, Nov. 20th.

HISTORY OF MEDICINE (Hon. Secretaries—Charles Singer, Arnold Chaplin): at 5 P.M.
Papers:
Dr. Raymond Crawfurd: Antonius Musa—his Practice and his Patients.
Dr. Cumston: A Note on Celsus' Operation of Lithotomy.

Thursday, Nov. 21st.

DERMATOLOGY (Hon. Secretary—S. E. Dore): at 4.30 P.M.
Cases will be shown.

Friday, Nov. 22nd.

DISEASE IN CHILDREN (Hon. Secretaries—G. E. C. Pritchard, H. C. Cameron, C. P. Lapage): at 4.30 P.M.
Cases will be shown.
Notes on a case of Chronic Nocturnal Priapism.

ROYAL SOCIETY OF ARTS, John-street, Adelphi, W.C.
WEDNESDAY, Nov 20th.—4.30 P.M., Inaugural Address:—Mr. A. A. C. Swinton: Science and the Future.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.
Clinics each week-day at 2 P.M., Wednesday, Friday, and Saturday also at 10 A.M.
(Details of Post-Graduate Course were given in issue of Nov. 2nd.)

UNIVERSITY COLLEGE, LONDON, Gower Street, W.C.
Two Lectures on Wound Shock.
FRIDAY, Nov. 22nd.—5 P.M., Prof. W. M. Bayliss. (Lecture I.)

ROYAL INSTITUTE OF PUBLIC HEALTH, in the Lecture Hall of the Institute, 37, Russell-square, W.C.
Course of Lectures on Public Health Problems under War and After-war Conditions (each Lecture will be followed by a Discussion):—
WEDNESDAY, Nov. 20th.—4 P.M., Lecture VII.: Sir John Collie, C.M.G.: The Care of Pensioners and Disabled Combatants in Relation to National Health and Wealth.

Appointments.

ORMISTON, ISABEL, M.B., has been appointed Medical Inspector of Schools of Health under Egyptian Government.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC.—Physician for Out-patients: HOLMES, GORDON M., C.M.G., M.D., F.R.C.P. Lond. Registrar: YEALLAND, LEWIS R., M.D. Ontario. Resident Medical Officer: BLANDY, M. A., M.B. House Physicians: RIVINGTON, EVELEEN B. G., M.B., B.S., GAINSBOROUGH, RICHARD, L.R.C.P., M.R.C.S.

ST. THOMAS'S HOSPITAL.—Casualty Officers and Resident Anæsthetists: BENAROYA, M., FOSS, R. S., GOOLDEN, G. A., M.R.C.S., L.R.C.P. Lond., MACDONNELL, J. J., PALMER, W. H., M.R.C.S., L.R.C.P. Lond. Resident House Physicians: HULL, G. R., WALKER, R. A., WARD, A. E., WILLIAMS, P. LLOYD. Resident House Surgeons: ANTHONY, W. M., MACDONALD, E. K., MCLEAN, C. F., SPOOR, A. T. House Surgeon: CALVO, R., M.R.C.S., L.R.C.P. Lond. Obstetric House Physician: HUGGETT, A. ST. G., M.R.C.S., L.R.C.P. Lond.

Vacancies.

For further information refer to the advertisement columns.

Birkenhead Borough Hospital.—Jun. H.S. £170.
Bristol Royal Infirmary.—H.P. and H.S. £120.
Caterham Asylum, Caterham, Surrey.—Temp. Asst. M.O. £7 7s. p.w.
Clifton, Yorks, North Riding Asylum.—Locum Tenens M.O. £10 10s. w.
Derbyshire County Council.—Tuberc. Officer. £500.
Devonport, Royal Albert Hospital.—Res. H.S. £200.
Dorchester, Dorset County Council Education Committee.—School Dentist. £350.
Essex County.—M.O.H. £1000.
Glasgow District Mental Hospital, Gartloch.—Asst. M.O.
Grosvenor Hospital for Women, Vincent-square, S.W.—Hon. Path.
Glasgow, Lightburn Joint Hospital, Shettleston.—Res. Phys. Sup. £300.
Liverpool, Brownlow Hill Poor-law Hospital.—Asst. M.O.'s as Locum Tenens. £7 7s. per week.
London County Council Evening Institutes.—Lecturers. 1 g. a lecture.
Monmouthshire County Council.—Female Asst. M.O. £400.
Perth, James Murray's Royal Asylum.—Phys.-Superintendent. £800.
Queen's Hospital for Children, Hackney-road, London, E.—H.P. £100.
Roll of Honour Hospital for Children, 688, Harrow-road, W.—Female Asst. P.
Royal College of Surgeons of England.—Election to the Court of Examiners.
St. Helens Lancs, Pilkington Special Hospital.—Res. M.O. £500.
St. Peter's Hospital for Stone, &c., Henrietta-st., W.C.—Jun. H.S. £75.
Sheffield Jessop Hospital for Women.—Junior Female H.S. £150.
Sheffield Royal Infirmary.—Two H.S.'s. £150.
Shrewsbury Dispensary, 42, St. John's hill, Shrewsbury.—Locum M.O.
York City Asylum, Fulford.—Temp. Asst. M.O. £350.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of a vacancy for a Certifying Surgeon under the Factory and Workshop Acts at Dawley, Salop.

Births, Marriages, and Deaths.

BIRTHS.

KELLY.—On Oct. 31st, at The Orchard, Bushey Grove-road, Bushey, Herts, the wife of Lieutenant-Colonel W. D. C. Kelly, D.S.O., R.A.M.C., of a daughter.

LEE.—On Nov. 5th, at Prince's-gate, the wife of Captain Harry Lee, F.R.C.S., R.A.M.C. (T.F.), of a son.

PAYNE.—On Nov. 5th, at Glengarry, Park-hill, Ealing, W., the wife of Surgeon-Lieutenant R. W. Payne, R.N., of a daughter.

REYNELL.—On Nov. 6th, at Highweek, Newton Abbot, the wife of Captain R. W. Reynell, R.A.M.C., of a daughter.

MARRIAGES.

COLLET—TYDD.—On Nov. 6th, at All Saints' Church, Ascot, Lieutenant-Colonel G. G. Collet, R.A.M.C., to Gertrude Eulalie, daughter of Mr. and Mrs. George B. Tydd, of Burleigh Lodge, Ascot.

GREEN—GARLICK.—On Nov. 8th, at St. Saviour's Church, Eton-road, N.W., Philip Withers Green, Captain, R.A.M.C. (T.), to Florence Hester, eldest daughter of the late George Garlick, M.D., of Gordon-square, and Mrs. Garlick, of Steele's-road, Hampstead.

DEATHS.

DAWNAY.—On Nov. 8th, at Marchwood-crescent, Ealing, of pneumonia following influenza, Archibald Hugh Payan Dawnay, F.R.C.S.

DICKEY.—On Nov. 4th, at Oakham, J. S. P. Dickey, M.A. Oxon., M.B., Ch.B. Edin., in his 36th year.

FISHER.—On Nov. 6th, at King's Langley, Frederick Charles Fisher; F.R.C.S., aged 60.

LOGAN.—On Oct. 31st, at Stone, Aylesbury, from influenza, Thomas Stratford Logan, L.R.C.P. & L.R.C.S. Edin., D.P.H. Lond., Assistant Medical Officer, Bucks County Asylum, elder son of the late William Logan, M.D., and of Mrs. Logan, Whitehead, co. Antrim.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

INFLUENZA DISINFECTION AND THE RÔLE OF THE CARRIER.

ON Nov. 6th, at the Royal Institute of Public Health, Professor J. M. Beattie delivered the fifth of a course of lectures on Public Health Problems Under War and After War Conditions. He began by referring to the work that had been done in regard to typhoid carriers. Many such were found among persons who showed no clinical symptoms of the disease. Cure was a difficult matter, and all workers recognised intermittent discharge at long intervals of pathogenic organisms in the fæces. Men were discharged as "cured" who still had bacteria in their urine. Such unsuspected carriers distributed among the population might become serious centres of infection. The same applied to the pneumococcus, the diphtheria bacillus, meningococcus, &c. An important matter seemed to the lecturer to have been neglected by sanitary authorities. In the act of flushing a water-closet spray is produced which may easily spread bacteria to the immediate surroundings, but in how many cities is the public closet disinfected after use? In the case of typhoid and dysentery carriers clothing and hands readily become infected and provide a fruitful source for the spread of disease. Infections of the upper air-passages are easily spread by the spray produced in coughing, more especially when overcrowding is also present, as was unavoidably the case in the present epidemic of influenza, where, owing to war conditions, a lowered resistance of the body was an added factor. Professor Beattie described a spray of electrolysed 3 per cent. saline solution to be used for disinfecting soldiers on a large scale. Although certain mechanical difficulties at present stand in the way of its use for the general public, an ordinary hand spray can be used. Disinfection of the throat is one of the most important factors, both in checking the carrier-rate and the actual spread of many common infections. It should be a routine practice in fever hospitals to disinfect the nose and naso-pharynx at least once every day, while in schools a daily nose and throat drill is to be desired. Children should thus learn that cleanliness of the mouth and upper air-passages is as important as that of hands, face, and teeth. In dysentery cases thorough washing out of the bowel is required. Cases of infantile and summer diarrhœa treated on these lines had produced striking results in the lecturer's hands. In the discussion which followed the lecture Professor J. R. Simpson urged that influenza should be made a notifiable disease, and Dr. T. N. Kelynack instanced an open-air sanatorium of 100 beds, not far from London, with visitors constantly coming and going, where no cases had occurred. The same was the case with a children's sanatorium, although cases had occurred among the outside staff, while another institution for children not far away, where open-air treatment was not in force, had had half its inmates in bed. Professor Beattie, in reply to questions, considered that influenza probably conferred a certain amount of immunity, but for a brief period only. Vaccine treatment, if practised at all, should, he thought, be on the lines suggested by the recent War Office conference (see THE LANCET, Oct. 26th, p. 565). Notification of influenza was a difficult task.

THE INSTITUTE OF HYGIENE.

THIS Institute proposes to build a Temple of Hygiene in the centre of London in order to provide better facilities for its work. Sir Malcolm Morris is acting as chairman of a committee to promote the scheme. Sir Samuel Scott, Bart., M.P., is the honorary treasurer.

THE LEBANON HOSPITAL FOR MENTAL DISEASES.

DURING the four years of war the Lebanon Hospital for Mental Diseases, near Beyrout, founded in 1896 by the late Theophilus Waldmeier, has been allowed to carry on its beneficent work without cessation under the care of the British director, Dr. H. Watson Smith. The work of the hospital has necessarily had no publicity given to it during recent times, and this has made it a difficult matter to keep up the necessary remittances for its maintenance. This has been done, however, through the kind offices of America. The Turks at one time desired to commandeer the institution for military purposes, but found that it was doing such good work amongst people of all races and creeds that they decided to leave it, and Djemal Pasha even presented 100 sacks of wheat at a time of difficulty.

The way is now clear and money can be sent through to Beyrout. The hospital needs help badly; food and other necessaries have been, and are, very expensive; added to this, when details are received it will be found that repairs are needed after the four years of war conditions. The difficulties have been many and formidable, but Dr. Watson Smith and his helpers have been able in a wonderful way to "carry on." The committee appeals for wider interest and for financial help to bring the hospital, which is the only one of its kind in the country, fully up to date. Information will be given by the general secretary, Lebanon Hospital Office, 35, Queen Victoria-street, London, E.C. 4.

THE MEDICAL MAN'S INCOME TAX.

To the Editor of THE LANCET.

SIR,—In the article by Mr. John Burns on the above subject, published in your columns of Oct. 19th, it is stated, with reference to taxable income, that the deductions permissible include "professional subscriptions and literature." I have inquired of the Surveyor of Taxes whether a subscription of 3 guineas to the Royal Society of Medicine and 30s. to THE LANCET may be deducted, and have received the following reply:—

"In reply to your letter of the 23th inst., I beg to inform you that subscriptions to medical societies are not admissible deductions for income tax purposes.

With regard to your claim to deduct the cost of literature, the matter appears to be governed by the case of Charlton *v.* Commissioners of Inland Revenue, 1890, 17 R. 785, in which it was decided that a minister assessed under Schedule E. was not entitled to a deduction in respect of cost of books purchased in connexion with his profession."

I enclose my card.—I am, Sir, yours faithfully,

Nov. 5th, 1918. MEDICAL SUPERINTENDENT.

*** Income-tax interpretation is not an exact science, and its practical application varies in different parts of the country. Whilst the purchase of a professional library would not be permitted as a legitimate deduction, replacements are generally allowable, and should be claimed. Subscriptions to medical societies should also be claimed, despite the opinion expressed in the letter of the Surveyor of Taxes above.—ED. L.

Communications, Letters, &c., to the Editor have been received from—

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B.—Mrs. T. R. Beale-Brown, Andoversford; Mr. G. G. Bonser, Sutton-in-Ashfield; Prof. W. B. Bell, Liverpool; Mrs. G. C. Brownson, Bristol; Mr. W. H. Baxter, Bournemouth; British Science Guild, Lond., Sec. of; Dr. L. T. Burra, Aylesbury; Dr. A. Balfour, C.M.G., Lond.; Sir John Byers, Belfast; British Fire Prevention Committee, Lond.; Mr. J. L. Balderston, Lond.; Dr. G. F. Buchan, Lond.; Dr. M. K. Barradah, Cairo; Dr. G. Blacker, Lond.; Mr. H. Blakeway, Lond.; Dr. B. Baskett, Rayleigh; Prof. P. Boveri, Milan.

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P.—Dr. A. A. Parson, Lond.; Dr. A. S. Percival, Newcastle-on-Tyne.

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The following journals, magazines, &c., have been received:—Journ. of Mental Science, Public Health, School Hygiene, Edin. Med. Journ., Archives Méd. Belges, Journ. of Laryngology, &c., St. Bart.'s Hosp. Journ., British Journ. of Dental Science, Journ. of State Med., Veterinary Review, Rev. Med. del Uruguay, Middlesex Hosp. Journ.